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THE

STUDENT'S HANDBOOK

OF THE

PRACTICE OF MEDICINE.

DESIGNED FOR THE USE OF STUDENTS PREPARING FOR EXAMINATION.

H. AUBREY HUSBAND, M.B.,

M.C., M.R.C.S., L.S.A.,

Member of the General Council of the University of Edinburgh; Extraordinary Member of the Royal Medical Society, Edinburgh; Honorary Physician Holloway and North Islington Dispensary.

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&c. &c.

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1873.

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TO

WILLIAM BUY OWEN,

AND TO

WILLIAM PULLEY,

WITH FEELINGS OF SINCERE GRATITUDE

I Dedicate

THIS TRIFLE,

THE AUTHOR.

PREFACE.

IN preparing these pages for publication, the writer has been actuated by the desire to place in the hands of the Student a collection of short notes on the practice of medicine, which he trusts may enable him to concentrate the knowledge that has been gained in the lecture-room, and by the perusal of more extended treatises.

Though deeply conscious of the many faults and imperfections which the book contains, the author nevertheless hopes that it may be found useful to the Student, for whom it is intended.

BENTINCK HOUSE,
STROUD GREEN ROAD, LONDON,
February, 1873.

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THE STUDENT'S HANDBOOK

OF THE

PRACTICE OF MEDICINE.

To place in the hands of the student a collection of concise and reliable notes of the practice of medicine is the object of the writer. It will be necessary, among other things, to treat first of those disorders which, as they affect the whole system rather than special parts, have been grouped under the head of General Diseases.

These may be conveniently separated into two sections—

SECTION I.—*Diseases in which the blood appears to be more or less implicated, and which present certain peculiarities.*

(*a*) They are accompanied with pyrexia, frequently with eruptions on the skin, and have a tendency to run a definite course.

(*b*) They are often contagious and infectious.

(*c*) One attack generally confers complete immunity from a second.

(*d*) They may occur epidemically.

SECTION II.—*The affections placed in this section often invade different parts of the same body, either simultaneously, or in succession. They also present certain hereditary tendencies.*

SECTION I.

Pyrexiæ.—Fevers.

Fever may be defined as an acute affection of the system of a nature more or less complex. It may occur idiopathically—that is, as a primary disorder—scarlatina, typhoid, &c., or secondarily in connection with other diseases as part of their phenomena—pneumonia, &c.

This state is marked by an abnormal rise in the temperature of the body, probably due to rapid tissue changes, the immediate cause of which appears to depend upon alterations of the nervous system.

The following, when there is no local disease adequate to account for them, may be taken as a tolerably accurate enumeration of the phenomena which usher in and attend an idiopathic, essential, or primary fever :—

There is in most cases a period of incubation,

which is more or less prolonged, and which varies in each species of fever. This state is succeeded by a feeling of chilliness, accompanied with rigors, the pulse becomes quickened, and the temperature of the body is greatly increased. The desire for food is entirely lost, but there is intense thirst. The urine becomes scanty and thick, due to a diminution in the quantity of water and to an increase in the urea and uric acid. To the above may be added a feeling of nausea, vomiting, headache, lassitude, pains in the limbs, restlessness, insomnolency, and often delirium.

The doctrine most reconcilable with our present knowledge is, that fevers consist of a primary blood disorder, the nervous system becoming secondarily affected. The following may be taken as an epitome of the reasons for adopting this view :—

(*a*) The introduction of a blood poison is rendered probable by the existence of a period of incubation.

(*b*) Fevers appear to be governed by certain laws which limit their existence; this fact may point to certain processes in the blood, which in time become exhausted.

Diseases of the nervous system are uncertain in their development and duration.

(*c*) Some of them may be produced by inoculation—that is, the introduction of a tangible virus. This is the case with small-

pox. From this we may infer that in other varieties of fever the same may occur.

(*d*) No known cause acting directly on the nervous system has as yet been proved capable of producing any of the fevers.

(*e*) It is more than probable that most nervous disorders have their origin in a vitiated state of the blood.

From the above, and from the difficulty of conceiving how external causes which give rise to fevers can possibly affect the nervous system prior to the blood, it is reasonable to suppose that the nervous phenomena which often attend fevers are induced by the primary blood disorder.

Febricula.

Ephemeral Fever, Simple continued.

A simple fever generally lasting from one to four days, and to which the term *ephemeral* is very properly applied. It may, however, continue in some cases for nine or ten days. Ephemeral fever appears to be caused by over-exertion, errors in diet, or exposure to the sun's rays. Febricula is not infectious, and unless complicated with other diseases, is rarely fatal. Febricula, as a rule, sets in suddenly; but in some cases, for three or four days before the fever is developed, lassitude, anorexia, and a general feeling of discomfort may exist. The

febrile movement is often intense, the heat of the body rapidly rising in a few hours from the normal temperature, F. 98° to F. 104°, and then as rapidly falling. The pulse varies from 100 to 120 or even 130 beats a-minute.

A hot skin, furred tongue, quick, full, and often firm pulse, frontal headache, pains in the loins and limbs, and complete loss of appetite, form the most prominent symptoms. The bowels are usually confined, the urine has a high specific gravity—1035–1037—is small in quantity and deep coloured. Herpetic vesicles often occur about the mouth; but there is *no characteristic* eruption.

Copious perspiration generally attends a cessation of the fever. Hemorrhage from the nose and bowels may also occur. It may be distinguished from typhus or typhoid fever by the abruptness of the attack, and by the existence of evident and ordinary causes.

The treatment consists in emptying the stomach by an emetic if necessary, and by the administration of saline purgatives to lessen the violence of the arterial excitement. Rest in bed and a low diet are indicated. The thirst may be allayed by cooling drinks, and complications as they arise treated on general principles.

TABLE *showing Points of Distinction between Relapsing, Typhus, and Typhoid Fevers.*

	RELAPSING FEVER.	TYPHUS.	TYPHOID.
Duration ...	Seven-day fever. Relapses occur on the fourteenth day from the invasion; the seventh from the critical sweating.	Fourteen-day fever.	Twenty-one day fever.
Mortality...	1 in 300.	1 in 5 or 6.	1 in 6.
Age.....	All ages.	Adult life.	Youth and adolescence.
Tendency to occur..	Epidemically.	Epidemically.	Endemically.
Anatomical signs.....	None.	Mulberry rash.	Rose-coloured rash, congestion and ulceration of Peyer's patches.
Cause.....	Starvation and over-crowding.	Contagion, miasm.	Miasma, foul drinking-water, &c.

Relapsing Fever.

Famine Fever—Seven-Day Fever—Bilious Remittent Fever.

The above-mentioned names have been given to a contagious continued fever of short duration, the febrile phenomena abruptly terminating, and

recurring after an interval of a week of comparative convalescence. A second, third, and even a fourth relapse may take place. The invasion of the fever is sudden; chilliness, followed by severe rigors, pains in the head and limbs usher in the attack. The temperature of the surface becomes intense, the thermometer marking as much as F. 102° to F. 107°, the tongue, usually moist, is coated with a white fur. The pulse is very rapid, from 110 to 140 beats a minute, but this frequency does not in itself betoken increased danger.

Vomiting of a bilious, greenish-yellow fluid, or of dark grumous matter, occurs in most cases. The bowels are constipated, and there is severe pain felt at the epigastrium, the urine is scanty and high coloured. About the fourth day of the fever, jaundice more or less intense may occur; but this state is not attributable to occlusion of the gall duct. There is no characteristic eruption, and the attendant prostration is not so great as in typhoid fever. Delirium seldom occurs.

Relapsing fever is most prevalent in the British Isles, but especially in Ireland, where it often prevails as an epidemic. It is seldom fatal; when so, death may be due to syncope or to uræmia, but more frequently to some complication such as dysentery or pneumonia. The prognosis is, on the whole, favourable. Extreme poverty, together with over-crowding, appears to favour the spread of this fever. It affects all

ages and both sexes indiscriminately, and may occur at any season of the year. The sudden invasion, the absence of a rash, and the well marked relapse, serve to distinguish this fever from typhus or typhoid. The treatment should consist in the exhibition of a sharp purgative at the outset of the disease. Rest in bed, and a diet, suited to the condition of the patient, should be allowed. The action of the kidneys must be carefully maintained, to prevent the tendency to uræmic poisoning. The ophthalmia, which often occurs as a sequel, is best treated by bleeding—two or three leeches applied to the temples will suffice. Other symptoms as they arise must be treated as the occasion requires. Quinine and digitalis have not been found of use in the treatment of this fever.

Typhus Fever—Typhoid Fever.

Before entering upon a discussion concerning the nature of two of the most important continued fevers, *typhus* and *typhoid*, it may be as well to place in parallel columns a list of the principal points in their pathology, which helps to distinguish them.

TYPHUS	TYPHOID
attacks persons of both sexes and all ages indiscriminately, and is generally traceable to contagion. The invasion is sudden; the head symptoms	chiefly occur in the young, from twelve to twenty-five years of age, and but rarely after forty. It is during this period that the solitary and

in the course of the fever are severe, delirium usually occurring towards the end of the first week. The eruption which belongs to the class *maculæ*, appears on the skin in the form of a mulberry-coloured rash, between the third and seventh day of the disease, imperfectly disappearing on the application of pressure, and continuing until the termination of the fever. The rash is seen all over the body, but seldom appears on the face. The spots may become petechial. Diarrhœa is seldom present during the course of typhus, and hemorrhage from the bowels never occurs. Typhus prevails most frequently among the poor, and may be due to bad diet and over-crowding. The disease runs its course in from fourteen to twenty-one days, and is most dangerous about the end of the second week. Typhus fever is most frequently fatal before the fifteenth day, never after the twentieth. The tendency to death is by coma.

aggregate glands of Peyer are most fully developed. As age advances, these glands disappear, so that after forty-five only traces of their previous existence can be discovered. The lesion in these glands forms the "anatomical sign" of typhoid. The average age of mortality appears to be about twenty-three. The miasma arising from the decomposition of animal matter, or the pollution of drinking-water by drains or sewers, is the fertile source of this fever. It is not so contagious as typhus. Pregnancy is said to give almost entire exemption from typhoid.

The invasion is insidious, the premonitory symptoms lasting about a week. The abdominal organs are much affected; congestion and ulceration of Peyer's patches occur, with attendant diarrhœa; and in about one case in every three, there is more or less hemorrhage from the bowels. The abdomen is tense, and pain is felt on pressure. The eruption, which belongs to the class *papulæ*, appears about the tenth day, and is chiefly found on the chest and abdomen. It comes out in successive crops of rose-coloured, slightly-elevated lenticular spots, in size somewhat less than a split pea. The rash disappears on pres-

sure. In two or three days the spots fade away, to appear again on another part of the body. "This successive daily eruption of a few small, very slightly elevated, rose-coloured spots, disappearing on pressure, each spot continuing visible for three or four days only, is peculiar to, and absolutely diagnostic of, typhoid fever."

Relapses are not uncommon in typhoid. The rich are most frequently attacked. The duration of the fever is more or less prolonged, from three to six weeks, but its maximum of intensity is reached about the third week. Typhoid is most frequently fatal after the twentieth day; more than half the deaths occur after this period. The tendency to death is by asthenia.

Typhus Fever.

Typhus fever has been long known. It is a contagious continued fever, having a duration of from fourteen to twenty-one days, attended with great depression of the vital functions. The tendency to cerebral complications is great, hence this disease is called by some *brain fever*. It is also characterised by the appearance, on or about the third day of the fever, of a peculiar maculated eruption on the skin.

The invasion of this fever may be abrupt, or

gradual and obscure. Usually, fits of shivering, attended with severe headache, pains in the back and limbs, usher in an attack. Other symptoms, common to most acute diseases, now make their appearance. There is loss of appetite, a dry, feverish tongue, hot skin, great thirst, constipation, scanty, high-coloured urine, and a sensation of intense lassitude and disinclination to move about. The muscular debility is usually so intense that the patient takes to his bed on the second or third day of the fever, and in most cases is incapable of moving from it without assistance. The intellect soon becomes affected, and there is much confusion of ideas. About the seventh day, low muttering delirium occurs, or the patient may become excited and noisy, making frequent attempts to jump out of bed. Niemeyer mentions a case in which a patient was sent to him in a strait jacket, from jail, suffering from typhus. During the early stages of delirium, the patient may be restored to consciousness by a sharp question; but as the fever progresses, he becomes less easily roused, more stupid, and his countenance wears a half-drunken expression. The surface of the body, particularly the face, assumes a dusky or dingy hue. As the disease progresses, the tongue becomes covered with a thick brown or black coating, sordes appear on the teeth, and the lips are dry and cracked. Diarrhœa, if present, is slight; and there is little if any abdominal tenderness. There is usually

more or less catarrh, attended with slight cough, proceeding from sub-acute bronchitis. The respiration is sometimes impeded and accompanied with frequent sighing, but as a rule it is increased, the average being about 21 a-minute. The pulse is feeble and quick, reaching 110 to 120 beats. The temperature of the surface, as registered by the thermometer, varies from 102° to 109° Fahrenheit. A rapid decline of temperature betokens the setting in of convalescence. The urea and uric acid are increased, whilst there is a gradual diminution of the chlorides. Albumenaria is also not unfrequent. From the third to the eighth day, the characteristic rash of typhus makes its appearance. The *maculæ*, *mulberry*, or *rubeoloid rash*, may occur under two forms—as distinct spots, or as a subcuticular rash. It first appears of a dusky, pinkish-red colour, slightly raised above the skin, and disappears imperfectly on pressure. The rash varies in colour on different parts of the body, and gives a mottled aspect to the skin. It subsides between the fourteenth and twenty-first day of the fever. In fatal cases, death takes place about the twelfth or fourteenth day. Several complications may occur during the course of the fever—these are generally to be referred to the nervous, respiratory, and circulatory systems.

Nervous system.—Convulsions, due to the blood-poisoning, are fortunately of rare occurrence. Increased cerebral excitement, ending in delirium

more or less severe, generally supervenes towards the end of the first week; in non-fatal cases, the delirium passes off in three or four days.

Respiratory system.—Pneumonia is not of unfrequent occurrence, sometimes ending in gangrene of the pulmonary tissue.

Circulatory system.—Dr Stokes has described a peculiar form of cardiac lision which he has named "typhus softening of the heart." A diminution of the impulse, and an impairment or loss of the first sound, indicate the cardiac phenomena of typhus.

The prognosis must be formed on a careful review of the symptoms, the age and condition of the patient being taken into consideration.

Poverty, over-crowding, with imperfect ventilation and unwholesome food, together with mental or bodily exhaustion, form the chief predisposing causes, the exciting cause being a specific poison generated by improper sanitary and hygienic conditions.

The *treatment* has now to be considered. The patient should be put to bed in a well-ventilated room. If the case is seen early, an emetic may be given with advantage. Beware of doing too much. Cooling drinks to allay the thirst, and tepid sponging of the body, together with hygienic and supporting measures, will form the most important part of the treatment of typhus. Be careful also in the use of alcoholic stimulants; do not, because it is a case of fever, rush to the

brandy-bottle; and remember that the occurrence of delirium does not always prohibit the use of alcohol, the delirium often being due to extreme prostration. Tonics and change of air will be required during convalescence.

Typhoid Fever.

Enteric Typhus—Pythogenic—Abdominal Typhus.

During the premonitory stage of typhoid fever, the patient is chilly, indisposed to exertion, and hangs over the fire. His limbs tremble, he complains of feeling sick, with entire loss of appetite. Pains in the limbs of a rheumatic nature are complained of, and he may suffer from repeated attacks of hemorrhage from the nose. His breath becomes offensive, his throat sore, his bowels usually irritable, sometimes confined, his sleep broken, his pulse quickened, his tongue white; he daily becomes weaker, and at last has probably a violent rigor, followed by great heat of the skin and intense headache, and such muscular debility that he takes to his bed. This is the accession, and the course of the fever has now set in, and may be divided for the sake of convenience into three weekly periods.

In the *first week*, the leading characters are vascular excitement and nervous depression.

There is a frequent and bounding pulse of about 90, much heat and great thirst, and at night there is delirium and great restlessness.

The sleep is broken by dreams, the patient often muttering, or uttering in a loud voice, portions of detached sentences. When awake, he lies with his eyes half open, quite conscious, but showing little interest in what is going on around him. In the course of the delirium, the patient may be temporarily restored to consciousness by the entrance of a stranger into his room, or by a sharp question addressed to him.

The oppression about the mental faculties is peculiar, and the patient can only with difficulty be induced to give an account of himself, or indeed to complain of anything but his head.

The tongue is at first but slightly coated with a white fur, but appears moist and broad, and is marked by the teeth. The epithelial covering generally falls off, leaving "a moist, red, smooth tongue, that looks as if covered with goldbeater's skin, or else is already inclined to dryness. If there be at first a thick, adherent coating on the tongue, it is usually detached from the point posteriorly, and from the sides toward the middle, so that the whitish yellow coating appears inclosed in a very red border, which constantly increases in width; but, in some cases, the detachment begins centrally, so that in the middle of the tongue there is a red stripe that has a peculiar tendency to become dry, and at the sides two whitish-yellow, moist, slimy stripes. The central stripe is often broad anteriorly, and disappears posteriorly, so that on the point of the

tongue we see a red triangle, with the apex posteriorly."

The bowels may be at the outset of the fever confined; but towards the end of the first week, the characteristic diarrhœa sets in, consisting of light-coloured, semi-fluid, yeast-like, or pea-soup stools, of which he may have, perhaps, seven or eight in the twenty-four hours. The abdomen feels full and tense, and there is slight tenderness felt on firm pressure made, especially over the right iliac region. A gurgling sensation—ileo-cœcal gurgling—is also experienced by the fingers.

The spleen towards the end of the first week becomes enlarged, but owing to its softness and to its displacement by the distended intestines, its outline can only with difficulty be defined.

Emaciation rapidly sets in, the muscles wasting as well as the fat. The urine is scanty, high-coloured, and loaded with urates, with marked diminution in the quantity of the chlorides. The diminution in the chlorides may be in part due to the spare diet, or to their elimination in large quantities with the stools or sweat. During the second week, the rose-coloured eruption makes its appearance, in successive crops, and is chiefly found on the chest and abdomen. Each crop lasts three or four days. If the finger be passed *very* lightly over the surface of the body, the eruption can be detected as slightly elevated, soft pimples, unlike the hard "shotty" feel

presented by the pimples in the early stage of the small-pox eruption. The eruption disappears on pressure, and when it fades away, no scar is left. The liability to sudden relapses attended with the appearance of new crops of the eruption is very characteristic of typhoid fever.

During the third week the emaciation and debility become extreme. The patient lies extended on his back, sinking towards the foot of the bed, making no effort to change or preserve his position. There is a purplish flush on his cheeks, and sordes cover his gums and lips. His tongue is dry, shrunken, stiff, and black, like a bit of leather; his urine, from inaction of the bladder, is retained, and his fæces pass involuntarily.

The noisy delirium now gives place to increasing stupor; he no longer recognises his friends, but mutters incoherently, or picks vacantly at the bed-clothes, and if he recovers, will not remember anything that has occurred during his illness. An erythematous rash in most cases appears on the sacrum, the cutis becomes exposed, and bed sores supervene. At length, and sometimes suddenly, as if by a crisis, he begins to improve; the tongue becomes moist at the tip and edges; there is some return of reason, like that of a little child; he asks for food in a ravenous way, and expresses a desire to get up. Still, however, there is a stage of sequelæ, in which he suffers from internal mischiefs that

have already taken place, and from one of which he may even yet be carried off. It is at the end of the third week that death most frequently occurs. The bowel affection may itself prove fatal, either in an early stage by hæmorrhage from an ulcerated vessel, or in the convalescent stage, about the fifth or sixth week, by perforation of the bowel and escape of its contents, causing peritonitis. This is to be feared when, after an attempt at recovery, the patient still suffers from irritable bowels, with occasionally hæmorrhage, the tongue remaining preternaturally red at the tip and edges, and the pulse frequent. When perforation takes place the abdomen suddenly swells and becomes excessively tender, the patient generally dying in three or four days. Such is a brief account of a typical case of typhoid fever. The anatomical characters peculiar to typhoid and found after death, are seated in Peyer's patches, and in the solitary glands of the small and large intestine. The glands are found enlarged, congested, and studded with ulcers, varying in size. Other lesions are also present, the spleen may be more or less enlarged and softened, the walls of the heart flaccid, and the muscular tissue softened.

The blood found in the cavities is of a dark, venous colour, and imperfectly coagulated. The kidneys are sometimes greatly congested, enlarged, and the uriniferous tubes filled with exfoliated epithelium, at other times they are

unusually pale. The membranes of the brain may or may not be inflamed and congested, the delirium being no index of the inter-cranial disturbance.

The gradual rise in temperature during the first three or four days in typhoid fever is very characteristic—thus, on the—

Morning of the first day, 98·6° F.; evening, 101·3° F.
,, second day, 100·22° F.; ,, 102·56° F.
,, third day, 101·66° F.; ,, 103·64° F.
,, fourth day, 102·56° F.; ,, 104·54° F.

It will be seen from the above table that every evening the temperature is about 2° F. higher than in the morning, and in the morning 1° F. lower than the previous evening, till on the fourth evening a temperature of 104° F. or 104·52° F. is reached.

Typhoid may be excluded,

1. If the temperature on the evenings of the second, third, or fourth day are only approximately normal.
2. If the temperature on the first three evenings be the same.
3. If the temperature on two of the first three mornings be the same.
4. If the temperature on the first two days rises to 104° F.

The temperature during the latter part of the first week and the early part of the second is almost uniform. The maximum is reached on or about the fourth day, and then remains

stationary for a day or two, decided defervescence not taking place till the twenty-first day.

During the third week the temperature shows a marked difference from that of typhus. In typhus the normal temperature is regained about the fourteenth day; in typhoid, the fever is continued unto the third week. When the temperature for two successive evenings has closely approached to normal, convalescence has set in. Typhoid fever appears to arise from the emanations of foul drains and cesspools, and is considered by some to proceed from a special poison contained in the excreta, and which is disseminated by the effluxion from water-closets, privies, and drains.

The most important part of the *treatment* of typhoid fever depends upon hygienic and supporting measures. The patient should be placed in a large well ventilated room, from which all unnecessary articles of furniture have been removed. If seen during an early stage of the disease, a hot bath will often afford great comfort to the patient. The diet should consist in milk, beef-tea, soups, and eggs. Alcoholic stimulants are indicated if the pulse becomes feeble, small, and compressible, but in the early stages they are not required. A mixture containing the chlorate of potass, syrup, acidulated with hydrochloric acid may be given. The diarrhœa if excessive may be checked by the administration of the chalk mixture, or lime water. In any case if the bowels are moved more than twice in twenty-four

hours, attended with great prostration, astringents should be given, the mineral acids to be preferred. Never be in a hurry to give aperients because patients wish it. As both typhus and typhoid run a definite limited course, the object of the physician is to keep the patient alive till the disease has worn itself out. The bladder should be examined daily and a catheter used if necessary. In the convalescence of typhoid fever, be very careful that solid food be not too soon taken, remember the tender ulcerated condition of the intestinal mucous membrane, and the liability to perforation.

Intermittent Fever or Ague.

The term intermittent fever has been given to a disease characterised by the occurrence of febrile paroxysms at stated intervals, and by the absence of fever during the paroxysms.

There are three types of intermittent fever or ague. The type of the fever depending upon the length of the interval.

Quotidian—returning daily, with twenty-four hours interval.

Tertian—returning every other day, with forty-eight hours interval.

Quartan—returning every third day, with an interval of seventy-two hours.

The time which elapses between the paroxysms is called the *intermission* or *apyrexia;* the *interval*

is the entire period from the beginning of one paroxysm to the beginning of the next. There are no known anatomical lesions peculiar to this fever. The exciting causes of ague appear to arise from marsh miasma. The effluvia from decomposing vegetable matter is most active, especially when the land is drying, after being soaked in moisture, as in the spring and after the early autumn rains. The poison is more virulent at night, and generally spreads in the line of prevailing wind, hugging, as it were, the ground, seldom rising to any considerable elevation. Groves of trees, or running water, appear to intercept its progress. A temperature of at least 60° F., it would seem, is required for the generation of *malaria*, its evolution being checked when the thermometer stands at 23° F. Malaria may be transported to considerable distances by atmospheric currents.

In the majority of cases an attack of ague comes on suddenly; premonitory symptoms when present are not very distinctive of this disease.

The paroxysm consists of three stages, the cold, the hot, and sweating.

In the *cold stage*, there is chilliness, shivering, chattering of the teeth, pallor and contraction of the features. The skin presents the appearance known as "goose skin." The patient complains of aching pains in the back and limbs, accompanied with a feeling of oppression at the chest, causing sighing and yawning. The

pulse is frequent, but small and feeble, the tongue white, sometimes furred. The urine is pale and scanty, and there is frequent desire to pass water. The commencement of a paroxysm, notwithstanding the sensation of coldness experienced by the patient, is most frequently indicated by a sudden, decided, and rapid rise of temperature. In the cold stage the blood leaves the surface and accumulates about the liver, spleen, and bases of the lungs, and the right side of the heart.

In the *hot stage* the skin becomes hot, and the face flushed; the patient complains of great thirst and throbbing headache. The tongue becomes dry, the pulse quickened, full or bounding, the urine scanty and loaded with urates. The thermometer placed in the axilla indicates a temperature usually from 105° to 106° F.

In the *sweating stage*, perspiration breaks out upon the forehead and face, and then on the body and extremities. The heat of the surface is diminished, the thirst and restlessness cease, and the patient feels relieved. The thermometer marks a rapid defervescence and return to the normal standard. The pulse subsides, the urine is increased in quantity, and deposits urates of soda and ammonia.

In the hot stage the heart reacts and throws out the blood again to the surface, but with too great violence, and the secretions are stopped. In the sweating stage, however, the secretions are restored and the balance of the circulation reproduced.

The paroxysm continues nearly six hours, and that of the *quotidian* occurs early in the morning, that of the *tertian* about noon, and that of the *quartan* in the afternoon between three and five o'clock. Of the three primary types, the quotidian and tertian are by far the most prevalent in Europe, the quartan variety is comparatively rare.

The quartan is said to have the longest cold stage, the tertian the longest hot stage. A rare variety called the *double tertian* sometimes occurs, in which there is a fit daily, but only those on alternate days resemble each other and take place at the same hour.

Owing to the repeated internal congestion during the cold stage, the liver and spleen become more or less affected, the latter organ especially, greatly increases in size and is then commonly known as "ague cake," in malarial districts.

The belly is often swollen and tumid, and the countenance assumes a yellowish or sallow tint, with more or less œdema, giving rise to what is called the *malarious cachexia.*

Ague is seldom fatal when uncomplicated.

The treatment of intermittent fever is divided into two parts, palliative during the paroxysms, and curative during the intermissions.

During the cold stage the patient should be put to bed, and every attempt made to restore warmth to the body, hot tea or coffee may be given and friction applied to the extremities. Relief during the hot stage is gained by sponging

the body with cold or tepid water. Ice or iced drinks are indicated to relieve the thirst. Careful protection from cold draughts, and wiping the perspiration from the body with warm flannels will promote the comfort of the patient during the sweating stage. The curative measures consist in the administration of a brisk cathartic, and then by the exhibition of large doses of quinine. The most successful mode of procedure appears to be as follows :—

Ten or twenty grains of the sulphate of quina should be given in solution during the sweating stage, followed by grain or two-grain doses, three times during the day. Some recommend the administration of quinine in five-grain doses, till cinchonism is produced, and continued in smaller doses for some weeks. The anæmia which is often a sequel to ague is best treated with chalybeates. Salacin, arsenic, the sulphites, the hydrochlorate of ammonia, and a host of other drugs, have been lauded as cures for ague. Of course no treatment can be expected to give permanent relief as long as the sufferer remains in an infected district.

Remittent Fever.

Paludal, Marsh Fever, Bilious Remittent Fever or *Remittent Fever*, is a malarious fever characterised by the occurrence of remissions instead of intermissions, as is the case with the fever just described. The remissions are less distinct in

proportion to the intensity of the fever. It is accompanied with functional disturbances of the liver, and frequently with yellowness of the skin. Remittent fever is most common in hot climates, but especially so on the coasts of Africa, about the mouths of large rivers, where the marsh miasm is very virulent.

The anatomical changes characteristic of this fever are found in the spleen and liver. When death occurs, the liver on examination shows signs of softening, and presents a slate, chocolate, or bronze colour. The colour is due it would appear to a deposit of pigment in the hepatic cells, or in the capillary network of the portal and hepatic veins. The spleen is more or less enlarged, softened, and contains a like deposit of pigment. The premonitory symptoms are those common to most fevers. The febrile paroxysm may last from six to forty-eight hours, and then subside, but does not disappear—there is a *remission*, not an *intermission*. During the fever, vomiting of a greenish or yellowish fluid occurs. Typhoid and remittent fever may be present simultaneously in the same patient, in that case the symptoms of each are mingled together. The duration of the disease is generally a fortnight.

The first thing to be done by way of treatment is to remove the patient from the infected locality. The same medicines, with their mode of administration, as recommended in the case of intermittent fever, are applicable in this disease.

Yellow Fever.

Typhus icterode; Vomito negro; Bulam fever.

Yellow fever is essentially a disease of tropical climates, seldom extending beyond 40° north or 20° south latitude. The exact origin of the poison of yellow fever has not been clearly made out; it would appear, however, not to be due to malaria, but more probably to the accumulation of fæcal excreta round dwellings, and to overcrowding. A continued high temperature of some weeks' duration greatly influences its origin and spread. It prevails epidemically chiefly in towns situated on the sea shore. Opinions vary greatly as to the contagious or non-contagious character of this fever. Whatever may be the nature of yellow fever poison, it has, however, been clearly proved to be portable, and that it can be introduced into a town by *fomites*.

The period of incubation varies from two to fourteen days.

A sensation of chilliness with or without rigors, followed by supra-orbital headache, pains in the limbs and back, anorexia, constipation, and vomiting of a limpid opalescent matter, together form the symptoms met with in an early stage of yellow fever. Should the disease continue unchecked, the vomit assumes the characteristic black colour, and a fatal termination is to be apprehended. The attack, however, in most cases comes on suddenly, without any premonitory

symptoms. The vomited matter consists of blood changed by the action of the gastric fluids, and varies in colour from a claret or dark-brown to almost black with a sediment like coffee grounds. The temperature of the body for the first few days rises to about 104° to 105° F. About the fourth or fifth day defervescence sets in, the thermometer marking a steady fall to normal or below this. The pulse seldom exceeds 100, sometimes sinking to as low as 40 or 30 beats a minute. The tongue, at first moist and more or less coated, becomes smooth, dry, and red like raw meat as the disease progresses. The urine is always acid in the first stage, during convalescence it is alkaline. The colour for the first few days of the fever is normal, but it soon assumes a sulphur or primrose tint, it then deepens to yellow or orange, and, should the patient recover, may appear dark brown or black. Albumenuria is of frequent occurrence. The skin in the course of the disorder assumes a yellow colour, whence the name. Occasionally coma and convulsions may occur, most probably due to uræmia. Delirium is sometimes present. Five typical forms of this disease have been described.

1. The algid form.
2. The sthenic form.
3. The hæmorrhagic form.
4. The purpuric form.
5. The typhus form.

The *post mortem* examination reveals no special anatomical characters. The liver appears to be most frequently affected. The colour is unnaturally yellow in some cases, in others a state of fatty degeneration is perceptible. The prognosis in a case of yellow fever should always be very guarded.

With regard to the treatment to be adopted, most observers agree that in mild cases the less interference the better. Purgation is contra-indicated except in those cases which call for depletion, or when uræmic poisoning is feared. The gastric irritation must be treated on general principles, creasote, small doses of prussic acid or ice to allay the sickness. Mustard plasters or small blisters applied over the pit of the stomach will often afford relief. Hot baths and warm pediluva are of great service. On the whole then, careful hygienic conditions, the use of supporting measures when necessary, the administration of diaphoretics and the chlorate of potash, will afford the greatest hope of success in the treatment of yellow fever.

ERUPTIVE FEVERS.

The diseases now to be considered and classed under the head of Exanthemata or Eruptive Fevers arise from a specific contagion, run a regular definite course, and are accompanied with a specific inflammation of the skin called "the eruption," which also runs a definite course. The mucous membranes are likewise more or less affected.

They occur for the most part but once during life. The true exanthemata having all these characters are, Small Pox, Measles, and Scarlet Fever; but there are many less perfect, as Chicken Pox, Erysipelas, and the continued fevers, but in the latter, the eruption is less constant and less prominent than in the true eruptive fevers. By some, these diseases have been classed under the head of Zymotic, from the theory that the poison acts on the blood like a ferment. There are five well marked stages in the career of these fevers.

1. A period of incubation.
2. A stage of invasion.
3. A stage of eruption.
4. A stage of desiccation.
5. A stage of convalescence.

A TABLE *showing Points of Distinction which serve to distinguish Small Pox, Measles, Scarlet Fever, and Chicken Pox.*

	SMALL POX.	MEASLES.	SCARLET FEVER.	CHICKEN POX.
Period of incubation	12 days.	10 to 14 days.	4 to 6 days.	Uncertain.
Premonitory symptoms...	Pains in the limbs and especially in the *back*. Sudden chills and rigors.	Those of a catarrhal attack.	Chills, rigors, and sore throat, intense heat of skin.	Slight feverishness and malaise.
Eruption appears....	Third day of fever.	Fourth day of fever.	Second day of fever	In some cases after two or three days fever. Most frequently there is no preliminary fever.
Eruption fades.....	Scabs form on ninth or tenth day of fever, and fall off about the fourteenth.	Seventh day of fever.	Fifth day of fever.	The contents of the vesicles become cloudy on the second day, and dry up on the fourth.
Character of the eruption.	At first a distinct papule, elevated, acuminated, of a florid red colour, and giving a peculiar "shotty" feel to the finger. The papules become vesicular and then pustular.	Papules of a dingy red colour, but slightly elevated and having a tendency to form crescentric patches. To the finger they give the sensation of being passed over a well worn nutmeg grater.	A crimson rash composed of minute slightly elevated dots. The rash extends over the whole of the body, which has the appearance of a boiled lobster. Desquamation follows.	Small red spots which in a few hours become limpid vesicles about the size of a pea. The surface of the body looks as if sprinkled with water. The contents of the vesicles become cloudy but never purulent. The vesicles dry up and the crusts fall off, seldom leaving any cicatrix.

Variola, Small Pox.

Small-pox is a continued fever characterised by the appearance of an eruption occurring on the third day of the fever. The eruption runs a definite course, appearing first on the forehead and backs of the wrists in small inflamed points called *Papulæ*, these on the fifth day become *Vesicula*, the cuticle being raised and filled with serum. Each vesicle has a central depression. On the eighth day the vesicles suppurate and become *pustula*, the central depression is lost, so that the pustules are orbicular and are surrounded by a bluish inflamed ring termed an *Areola*. On the eleventh day the process of scabbing takes place, the pustules bursting and then drying up. The fever as soon as the eruption appears *remits*, but returns during the suppurative stage of the pustules. There are four well marked stages—

1. A period of incubation of from twelve to fourteen days' duration.
2. A stage of invasion. Two to four days.
3. A stage of eruption. (*a*) Eruption about five days. (*b*) Suppuration four or five days.
4. A stage of desiccation. Six to ten days.

After a period of incubation an attack of small pox is generally ushered in by a sensation of chilliness, alternating with flushes of heat. Nausea followed by vomiting is often an

early symptom. The tongue becomes furred, and pain is complained of in the epigastric region. Cephalalgia and pains in the limbs and *back* are also present, the latter is an important diagnostic symptom. Children are often seized with convulsions in this stage. On the second day of the disease the thermometer may mark 105° of heat, the temperature then falls on the appearance of the eruption, but during the period of suppuration it again rises to 102° or 105°, the evening temperature being somewhat higher than in the morning. This irregular course of rise and fall continues till about the eighteenth day, when the normal temperature is reached. On the third day of the invasion the eruption appears at first in small isolated pimples, but soon extending over the body, the face being most thickly covered. The temperature of the surface now falls from 106° to 100° F. About the sixth day the pimples become small vesicles, and these about the eighth day pustular, when the *secondary* or *suppurative fever* comes on. The pustules burst about the eleventh day and desiccation commences. Delirium may occur during secondary fever, and in confluent small-pox the danger to life becomes great. Small-pox has been divided into two varieties—variola *discreta* and variola *confluens*. In the first variety all the pustules are *separate* and *distinct*, in the second they coalesce over the greater part of the body.

The symptoms in each variety differ only in their intensity, the latter being most dangerous.

Besides the secondary effects of the small-pox poison on the system—the fever and the eruption—there are well-marked *tertiary affections*, which, for the sake of convenience of description, we shall tabulate as follows :—

(*a*) Vascular system.
(*b*) Genito-urinary system.
(*c*) Cutaneous system.
(*d*) Digestive system.

(*a*) *Vascular system.*—Hæmoptysis is by no means of infrequent occurrence, and this may or may not be combined with inflammation o the lungs, which latter generally takes the form of pleuro-pneumonia. When the latter occurs, the mucous membrane of the trachea is often found covered with an irregular honeycombed layer of semi-purulent, muciform matter, which is said to be peculiar to small-pox. This on removal leaves the subjacent tissue in a state of diffuse inflammation. Dr Gregory asserts that the pleura is particularly liable to take on an inflammatory action, and that this generally occurs about the eleventh or twelfth day. Well-marked pyæmia may also occur when the disease becomes confluent, and in one case, where this condition was present, the increase in the sulphuric acid passed in the urine was well marked. The muscular structure of the heart is also often softened and easily penetrated by the finger.

(*b*) *Genito-urinary system.*—Hæmaturia, renal abscess, and orchitis are the most frequent complications in the male, whilst in the female, ovaritis, menorrhagia, and abortion, should the woman be pregnant, together with the same tendency to hæmaturia and abscess of the kidney.

(*c*) *Cutaneous system.*—The areola tissue under the skin is in some cases the seat of numerous small abscesses, which form in rapid succession on the limbs. These abscesses seldom contain healthy pus. The cuticle is frequently softened, and has a marked tendency to peel off.

(*d*) *Digestive system.*—Whether the pustular eruption of small-pox is ever present on the mucous membrane of the stomach and intestines may admit of doubt. It may, however, occur in the mouth and on the fauces. The probable explanation of their supposed presence on the intestinal mucous membrane may be that suggested by Aitken, who remarks that "the appearance of eruption in such cases is due to the solitary mucous glands, which are filled with exudation, not of a purulent kind, but having all the external appearance of pustules." Small pox as a rule occurs but once in the same person, but cases are on record of two, three, or even more attacks on the same individual. It may also be combined with measles, whooping-cough, ague, &c., &c. In these cases, it is more or less modified by the concurrent disease. The eleventh day of the fever, or the eighth day of the erup-

tion, is the period at which deaths most frequently occur.

The sequelæ are deafness, due to suppuration of the internal ear, blindness, abscesses, boils, &c.

With regard to the affection of the eye, often ending in blindness, Mr Marson says, "The eye seems to possess a complete immunity from the small-pox eruption, and that although it sometimes extends to the inner margins of the eyelids, the particular local affection that causes the destruction of the organ of vision in variola begins generally on the eleventh or twelfth day, or later, from the first appearance of the eruption, and when the pustules in every other part of the body are subsiding. It comes on after the secondary fever has commenced, with redness and slight pain in the part affected, and very soon an ulcer is formed, having its seat almost invariably at the margin of the cornea. This continues to spread with more or less rapidity, and the ulceration passes through the different layers of the cornea, until the aqueous humour escapes, or till the iris protrudes. In the worst cases there is usually hypopion, and when the matter is discharged, the crystalline lens and vitreous humour escape. In some instances the ulceration proceeds very rapidly; I have more than once seen the entire cornea swept away within forty-eight hours from the apparent commencement of the ulceration; and, what is singular, now and then the mischief goes on without the least pain to the patient, or his being aware that anything is amiss with his eyes."

The diagnosis prior to the stage of eruption cannot be made with certainty. In measles, the stage of invasion is longer, and is marked by catarrhal symptoms; in scarlet fever, the rash appears on the second day, and the throat is early affected.

The fatality in natural or unmodified small-pox is great, but the danger to life is greater in some epidemics than in others. The confluent variety is more fatal than the distinct, the danger in the former being greater during the stage of secondary fever. Dr Watson says, "There is no contagion so strong and sure as that of small-pox: none that operates at so great a distance."

The treatment of small-pox is either local, pertaining to the eruption, or general. The general treatment, when the disease is *distinct* and slight, consists in opening the bowels and placing the patient in a large well-ventilated room. Otherwise, there is no special treatment. Barley-water, lemonade, and iced drinks may be given, if there is great thirst. In confluent small-pox the treatment must be varied to meet the symptoms as they arise. Opiates are indicated if there is great restlessness and delirium. If the pulse becomes feeble supporting measures will be required, strong beef-tea, and alcohol, if necessary, freely administered.

The following are some of the suggestions that have been offered with regard to the local or *ectrotic* treatment of the eruption:—

(*a.*) Evacuation and cauterisation of the pustules with nitrate of silver.

(*b.*) Exclusion of light, placing the patient in total darkness.

(*c.*) Opening the pustules with a fine needle.

(*d.*) Smearing the skin with mercurial ointment.

(*e.*) Painting the surface with collodion.

Many other measures have been proposed at various times to obviate the disfigurement caused by *pitting*, but the efforts have not hitherto met with any decided success.

Varioloid.

Under this head are now classed such diseases as were formerly known and described as *stone-pock*, *horn-pock*, *wart-pock*, and which are now considered to be small-pox more or less modified by vaccination. The following list of differences between small-pox and varioloid, given by Aitken, will help to distinguish the two diseases.

1. A fever of three days, without eruption, affecting people during variolous epidemics.
2. A high and severe fever, followed by a mild eruption, sometimes only a single pock; the slight proportion which the amount of eruption bears to the severity of the preceding fever is, perhaps, the most marked characteristic of varioloid.

3. The occasional appearance of a scarlet efflorescence, like that of scarlatina or roseola, preceding the appearance of the proper pimples, which occur as a scanty crop.
4. In some rare instances the eruption is confluent, but does not advance beyond the development of a pimple or vesicles, and begins to dry on the fourth or fifth day of the eruption, forming a small hard tubercle, which soon disappears.
5. Sometimes the eruption is at once pimple, vesicle, and pustule at one time in the same case.
6. Sometimes the eruption runs its regular course, but stops sooner, sometimes on the sixth or seventh day, instead of the eighth or ninth. In general, it may be stated that the severity and fully developed state of the disease is in proportion to the length of time which elapses from vaccination.
7. The varioloid eruption wants the peculiar odour of natural small-pox, and secondary fever is very rare.
8. Other eruptive affections—such as measles, scarlatina, purpura—materially modify the course and symptoms of small-pox.

Vaccinia Cow-Pox.

To Dr Jenner is due the discovery that cow-pox communicated to man renders him less susceptible to the contagion of small-pox. The

generally received opinion is, that vaccinia, or cow-pox and variola are identical, the poison of the latter being modified, and rendered milder by passing through the system of the cow. There are several methods by which the operation of *vaccination* is performed, but the following may be taken as a guide. The usual place chosen for implanting the lymph of cow-pox is the skin covering the deltoid muscle of the arm. The arm is grasped by the left hand of the operator, and the skin tightened, a clean sharp lancet is now charged with lymph, and passed gently into the skin, so that a valvular puncture is made, and the vaccine virus allowed to enter the wound.

If the operation be successfully performed, about the second day small red points appear raised over the sites of the punctures. Papules on the fourth day become developed, and on the fifth or sixth day distinct vesicles are discoverable. On the eighth day they attain to their full development, and are surrounded by an aerola. On this day also the vesicle is distended by a clear lymph. About this time there is usually some slight fever, the lymphatics of the arm are swollen, and the axillary glands enlarged. Soon after the eighth day the contents of the vesicles become more or less purulent, and a black spot is seen in the centre of the pock. On the fifteenth day a hard blackish scab is formed, which generally falls off about the twenty-fifth day

from the date of the operation. A lichenous eruption often attends or follows vaccination.

Saline aperients and the application of a cold bread and water poultice to the inflamed pocks is all that is necessary by way of treatment.

Varicella, or Chicken-Pox

is a contagious disease, occurring chiefly in early life, attended with a vesicular eruption and slight fever.

It requires no special treatment beyond the restriction of the diet and the administration of saline aperients. The vesicles usually dry up between the fourth and seventh day of the disorder, leaving small red spots, but seldom cicatrices on the skin. It is of importance to early distinguish this disease from variola, so as to allay the anxiety of the patient's friends. The following description may help the student to distinguish small-pox from chicken-pox. In small-pox the premonitory symptoms are well marked: rigors, considerable fever, and severe pain in the loins. In chicken-pox, on the other hand, the fever, if present, is slight, and the patient—most frequently a child—scarcely complains of feeling ill; "the body, in varicella, has the appearance of having been exposed to a momentary shower of boiling water, each drop of which had occasioned a minute blister." The vesicles do not become pustular unless irritated.

Scarlatina, or Scarlet Fever.

There are three varieties of this disease—*scarlatina simplex*, *scarlatina anginosa*, and *scarlatina maligna*.

After a period of incubation of from four to six days' duration, scarlet fever sets in with a sensation of chilliness, vomiting, and *sore throat*, the latter being an early and a prominent symptom. The temperature of the surface rapidly and steadily rises, and attains a greater elevation in this than in the other eruptive fevers. If the throat is early examined, redness of the fauces, more or less vivid, may be observed, and there is some pain experienced during an attempt to swallow. Hemorrhage from the nose in this stage is not uncommon.

This is the stage of invasion, the scarlet eruption appearing on the second day of the fever. The eruption is generally first noticed on the body and limbs before it makes its appearance on the face. It occurs primarily in the form of small dots, more or less raised above the surface of the skin. These dots soon coalesce, forming irregular patches, varying in size and shape. The redness is scarlet, but is not so uniform as in the case of erysipelas, and it disappears temporarily on pressure. The maximum of diffusion and intensity of the rash is reached on the third day after its first appearance.

In scarlet fever, the temperature on the evening

of the second day is about 105·6°, it may then rise on the third day to 105·8°, and from that day till about the ninth day it vacillates between 103·8° and 102·9°. On the tenth day it falls to 100·9°, and then defervescence continues uninterruptedly till the normal temperature is reached about the fifteenth day. Dr Sydney Ringer has shown that the temperature in scarlet fever falls on the fifth day of the disease, then on the tenth, and so on, each fall being separated by an interval of five days. Compare this course in the temperature of this disease with that of measles, the sudden fall from 102° on the fifth day to 102° on the seventh day is typical of the latter disease.

The throat in mild cases of scarlet fever is not very sore, some patients scarcely complaining of any inconvenience. In *scarlatina anginosa* and *maligna*, on the other hand, the affection of the throat is always a prominent and distressing symptom. The glands of the neck become secondarily affected, inflamed, and painful.

The appearance of the tongue is peculiar; at first it is greatly furred, the papillæ, projecting through the coating give it the appearance of having been sprinkled with red sand.

As the disease progresses the coating peels off, leaving the surface of the tongue clean and red, the enlarged papillæ giving to it a *strawberry-like* appearance, especially at the tip and edges.

During the eruptive stage delirium generally

exists, often requiring the attendance of a watcher to prevent the patient from injuring himself. Slight albumenuria is often present.

The duration of the stage of eruption is from four to six days.

Desquamation usually sets in prior to the entire disappearance of the rash. At first the cuticle comes off in small scales like scurf, but it can at times be removed in small sheets, especially from the hands and feet. Troublesome pruritus, often intense, accompanies this stage. Albumenuria is also present, but, unless in a very large amount, does not indicate any alarming complication.

So far, we have only described a mild case of scarlet fever, others, unfortunately too frequently occur, when the disease assumes a most malignant type. In scarlatina anginosa and maligna the whole force of the poison seems to be directed to the throat and cervical glands. The tonsils are enlarged and covered by a diphtheritic exudation; the act of deglutition is performed with difficulty, and with great suffering, and the breath becomes fetid. The rash is slight, sometimes absent. The severity of the throat affection often leads to a rapidly fatal termination.

The sequelæ of scarlet fever are albumenuria and dropsy, generally coming on during the stage of desquamation, if care has not been taken to protect the patient from cold. Deafness is not an unfrequent sequel, and may be due to per-

foration of the membrana tympani, to closure of the eustachian tubes, or to disorganisation of the internal ear by the extension of the inflammation from the throat.

When dropsy occurs, œdema is generally first noticed in the face and lower extremities.

Convulsions and coma, due to uræmic poisoning, may also occur as sequels to scarlatina. Scarlet fever is very infectious, and may be communicated by fomites. In spite of the greatest care to properly cleanse and disinfect houses, scarlet fever may again break out in the same building after the lapse of some months. One attack is generally a preventive to a second, but the exceptions to this rule are by no means rare.

The prognosis must be guided by the nature of the symptoms and the severity of the throat affection. Convulsions and coma are often the forerunners of a fatal termination. Death may sometimes be due to the formation of a clot in the right cavities of the heart.

Among the infectious diseases scarlet fever ranks second in its fatality, being, however, more fatal in towns than in the country.

Treatment.—In simple cases, little is necessary by way of treatment beyond the usual measures adopted in fevers; viz., good ventilation, and the prevention of exposure to cold. Cooling drinks to allay thirst, and simple nourishment may be given. The bowels may be relieved by the administration of enemas or saline aperients.

The affection of the throat is best treated by a gargle of the chlorate of potash and raspberry vinegar. Some recommend the application of the wet sheet, or *wet pack*, as it is called. Sponging the body with tepid water will often afford great relief, and help to diminish the intense heat of the skin. Of course, in the malignant forms of the disease alcohol must be given; bark and the chlorate of potash, or carbonate of ammonia, will form the chief medicines from the administration of which any hope may be derived.

The dropsy is best treated by the exhibition of the tincture of iron, and by free purgation with elaterium or jalap. Extreme restlessness and vigilance may require the administration of anodynes; hyoscyamus and belladonna are to be preferred to opium. Lastly, be careful in your recourse to alcohol, for by beginning its administration too soon you rob yourself of a valuable assistant in the hour of need.

Dengue.

To an epidemic disease characterised by pyrexia, accompanied with excruciating pains in the head, and muscles of the body and extremities, and with the presence of an eruption, not unlike that of scarlet fever, the name dengue has been given. It has been called by some *break-bone fever*, by others *scarlatina rheumatica*. Epidemics have occurred in the West Indies, and in several parts of the United States. The treat-

ment consists in the administration of opiates to relieve the suffering, and the application of rubefacients to the spine and painful parts. Alcohol is often indicated. During convalescence, which is often tedious and prolonged, tonics and change of air will be required.

Morbilli, or Measles.

Measles, unlike the other eruptive fevers, sets in with *well-marked catarrhal symptoms.* A hybrid of measles and scarlet fever has been described under the names of *Rubeola* or *Rötheln.*

The period of incubation of measles is from ten to fourteen days, *the rash appearing on the fourth day of the fever,* and fading away on the seventh.

The eruption first appears on the forehead and temples, extending in a few hours over the body and limbs. It is of a dull red colour, occurring in the form of minute dots not unlike flea-bites, slightly elevated above the surface, and having a tendency to coalesce in crescentic forms. Defervescence takes place on the disappearance of the eruption.

Bronchitis, pneumonia, diarrhœa, and in severe cases gangrene attacking the mouth, vulva, nose, and lungs may happen during the course of measles. In children, chest complications most frequently occur, *should be carefully looked for and treated.* Like scarlet fever and small-pox, an attack of measles appears to be due to the absorption of a specific poison into the system. The disease can be

communicated by inoculation and by fomites. Children are more frequently attacked than adults; it has, however, been known to prevail epidemically among troops. As a rule, it occurs but once during life. The prognosis is favourable in simple measles, the danger in the young being due to bronchitis, pneumonia, and other complications. The treatment in mild cases consists partly in palliative, and partly in dietetic and hygienic measures. Aperients when necessary should be given, and the cough, which is often very distressing to the patient, must be allayed by appropriate medicines. Complications, as they present themselves, must be treated on general principles.

Erysipelas

is a disease characterised by fever and the appearance of a peculiar eruption on the skin. The inflammation which also attends the eruption has a tendency to spread and to invade the areolar tissue. In Scotland it is known as the *Rose*, in England it is sometimes called *St Anthony's fire*. The temperature rises rapidly, and may reach in a few hours 104° or more. As long as the inflammation is spreading the temperature continues high, even as much as 106°. The defervescence is sudden, but is liable to sudden and abrupt rises and falls, before convalescence is well pronounced. The parts attacked by erysipelas become red, hot, and swollen. The face and those parts of the body

which are most exposed are usually the seat of the disease. Erysipelas may be either *idiopathic*, when it arises from internal causes, or *traumatic*, when it follows wounds.

The disease has been divided into three varieties—

1. Simple.
2. Phlegmonous.
3. Diffuse.

In the last the inflammation has a tendency to spread indefinitely over the surface of the body.

Erysipelas may terminate in three ways: by resolution, by vesication, or by gangrene. During the course of the disease the urine may become albuminous, but there is always a diminution in the quantity of the chlorides.

A fatal termination may be due to a failure of the vital powers, to the extension of the inflammation to the membranes of the brain, or to a like extension to the glottis, in which case the patient dies from suffocation. Of the specific nature of the poison of erysipelas nothing is known; but the predisposing causes would appear to be a full habit of body, constitutional peculiarity, previous attacks, old age, and extreme debility. It spreads chiefly by contact, may be inoculated, and is conveyed by fomites. It often prevails as an epidemic.

The treatment consists in the adoption of measures to reduce the inflammatory action, to support the system when necessary and to protect the inflamed parts from contact with the air. The first

indication is carried out by the administration of a brisk saline purgative. The tincture of steel may be then given in fifteen to twenty drop doses, three times a day, combined with quinine; or if the stomach will not tolerate the iron, the quinine may be given alone in five-grain doses. Beef-tea, and a light nourishing diet, should be allowed. The application of fine wheat flour to the inflamed parts will best carry out the last indication in the treatment. Penciling round the inflamed parts with a stick of nitrate of silver, or the application of collodion, has been recommended by some. A lotion composed of the sulphate of soda in water is recommended by others. In the phlegmonous form of the disease, deep incisions must be made in the part, and a large warm linseed-meal poultice applied.

Plague.

The plague is a contagious malignant disease, attended with pyrexia and the presence of buboes, carbuncles, pustules, and petechiæ in various parts of the body. It is now happily confined to Eastern countries, the last visitation in Western Europe being in the year 1665, and known as the "Great Plague." It is computed that no less than 68,526 persons died in one year in London and its suburbs alone. The disease is generally preceded by great languor, headache, shivering, and vomiting. The local phenomena then appear: swelling of the tongue, excruciating pains

in the axillæ, and the formation of buboes and carbuncles. After death, the internal organs are found engorged with blood, the liver is enlarged, and sometimes covered with petechial spots. The kidneys are surrounded by a hæmorrhagic effusion, and are themselves loaded with blood. The disease is endemic in Egypt.

The treatment of plague is not very satisfactory; but the measures which appear to promise most success are those adopted in the treatment of malignant typhus fever.

Epidemic Cholera.

Cholera Indica. Cholera Indica mitior. Cholera Indica gravior.

Cholera is an epidemic disease due to the admission of a specific poison into the blood, possibly of a miasmatic origin. The exact mode of origin and propagation of cholera has not yet been clearly made out, but it is generally supposed to be due to the reception of a peculiar poison, which rapidly undergoes multiplication within the body, and is disseminated by means of the discharges from the infected, impregnating the water of rivers and wells used for domestic purposes. The atmosphere is also probably more or less influential in its spread; and it may be imported from one locality to another by human intercourse, and by fomites.

In most cases cholera is preceded by simple diarrhœa and vomiting. After this condition has

continued for a period more or less prolonged, the specific symptoms of the disease make their appearance.

The discharges suddenly become copious, consisting of a thin liquid, not unlike whey or rice-water; hence the name "rice water-stools" of cholera. The absence of *bile* in the vomited matter and in the evacuations, together with the marked tendency to early collapse, distinguish this disease from English or Summer Cholera prevalent towards the end of the summer months and the beginning of autumn. The act of evacuation is not accompanied with pain, but often with a sense of relief. Vomiting of a large quantity of turbid whitish fluid is not of infrequent occurrence. Powerful and painful contractions of the muscles is another characteristic of this disease. The urine is diminished in quantity, in some cases entirely suppressed, the bladder being found empty on examination after death.

The blood becomes viscid from the loss of the watery portion, and is thicker than in health. Painful contractions—*cramps*—of the muscles of the soles of the feet, calves and abdominal walls, are sometimes present. If the disease is not early checked, it passes into the *algid* or *cyanosed stage*, ending in fatal collapse. The temperature of the body rapidly sinks, the pulse becomes accelerated and feeble, the skin assumes a bluish-slaty colour, and the breath feels cold to the hand. Should

the disease, however, be arrested, the *stage* of *reaction*, associated with more or less febrile movement, sets in ; the purging gradually diminishes, the stools becoming green and gelatinous.

Dysentery, or obstinate constipation, may follow as a sequel.

There are no constant appreciable anatomical characters accompanying epidemic cholera. In some cases the heat of the body is rapidly developed a few hours after death.

As to the predisposing causes of cholera little is known, the weak suffering equally with those in robust health. Great fatigue, when long continued, may aid its development. Cholera has been known to attack the inhabitants on one side of a street, those on the other side enjoying complete immunity from the disease.

The prognosis should be very guarded.

Treatment.—This is both prophylactic and therapeutical.

Every case of incipient diarrhœa during an epidemic of cholera should be arrested at once if possible, and "house to house visitation," conducted by properly instructed persons, should be organised. Sporadic cases of diarrhœa should be treated on the spot. The cisterns and drains should be examined, and disinfectants used in the latter. With regard to the therapeutical treatment, almost every known drug has at some time or other been named as a specific : opium, castor oil, calomel, and a host of others have all had

their votaries. As there is no particular line of treatment which promises much success, the physician must content himself with treating the symptoms as they arise.

SECTION II.

The affections placed in this section often invade different parts of the same body, either simultaneously or in succession. They also present certain hereditary tendencies.

Rheumatic Fever.

Acute rheumatism is essentially a blood disease, the poison being supposed by some to be *lactic acid.* It occurs chiefly among the young, especially those of plethoric habit of body. The exciting causes appear to be cold and damp, especially the evaporation from wet clothing. The primary symptoms of the disease are those of a severe catarrh, attended with considerable fever, and pains in the back and limbs. After a few days the local attack begins as an acute inflammation of the fibrous structure of one or more of the large joints. The ligaments, aponeuroses, fasciæ, and tendons surrounding the wrists, shoulders, knees, and ankles, are most frequently attacked. The affected joints are swollen, hot, slightly reddened, and extremely painful, the

pain being increased by the slightest attempt at motion. The fever is peculiar; the skin, though hot, is bathed in a profuse, sour, offensive smelling, and clammy sweat. The urine is very acid and high coloured, and deposits a reddish or pink sediment of urates. The pulse varies from 90 to 120, and is remarkably round and full. The tongue is covered with a brownish fur, and there is entire loss of appetite and obstinate constipation. The proportion of the fibrine of the blood is greatly increased, and the blood, when drawn from a vein, is *cupped* and *buffed*. The tendency to metastasis is great in rheumatic fever, the local inflammation moving from one joint to another, or to other fibrous structures, as the *pericardium, valves of the heart*, the fascia lining the thoracic cavities and diaphram, and the aponeuroses of the abdominal muscles. The duration of the disease is usually three weeks; but it may continue longer, and become a chronic affection.

The most important complication in acute rheumatism is when the heart becomes secondarily affected. The symptoms which betoken this state of affairs are attacks of dyspnæa, palpitation, and pain increased by any attempt to lie on the left side.

Several varieties of rheumatism have been described by authors, thus we have—

Sub-acute Rheumatism.

Gonorrhœal Rheumatism.—Rheumatism associated with gonorrhœa.

Synovial Rheumatism.—A rheumatic affection, in which an accumulation of nonpurulent fluid occurs in the synovial sacs, and especially in those of the knee joints.

Muscular Rheumatism.—Pain in the muscular structures increased by motion—

(*a.*) Lumbago. (*b.*) Stiff neck.

Chronic Rheumatism.—Chronic pain, stiffness and swelling of various joints.

The so-called "growing pains" in the muscles of the calves of the legs are of rheumatic origin.

The prognosis is favourable if metastasis has not taken place to the brain, heart, or lungs, and if these complications are not very severe.

The treatment consists in the administration of a brisk saline purge in the early stage of the disease, followed by the exhibition of the salts of potash, combined with the iodide of potash and colchicum. The painful joints should be wrapped up in cotton wool or flannel. The thirst may be allayed by lemonade or barley water. The diet should be light and simple. The pain may be relieved by opiates—compound ipecacuanha powder—and by the application of anodyne fomentations to the painful parts. The daily use of the potash water as a drink often affords relief. In chronic rheumatism, the iodide of potash, guiacum, and colchicum, together with the bicarbonate of potash, are the remedies of most service. Lemon juice in tablespoonful doses has been recommended by Dr Burrows and others. After the acute stage,

small blisters applied to the joints do good. These should be placed on the proximal side of the affected joint, in the form of a circle.

The heart complication is best treated by dry cupping, the application of belladonna, and mercurial plasters and small blisters applied to the cardiac region of the chest.

Gout, or Podagra.

1. *Acute Gout.* 2. *Chronic Gout.*

Gout is a blood disease attended with symptomatic fever, the presence of large quantities of uric acid in the blood, and deposits of urate of soda in the immediate neighbourhood of one or more of the small joints, especially the metatarso-phalangeal joint of the great toe. It is more common among men than women, occurring chiefly in elderly men addicted to the pleasures of the table. It is often hereditary, especially in those who suffer habitually from heartburn, and other symptoms of acid dyspepsia, accompanied with copious deposits of uric acid gravel in the urine.

An attack of gout generally comes on during the night as an acute inflammation of the synovial membrane of one of the smaller joints. The joint soon becomes swollen and painful, the skin is red, hot, tense, and shining. The pain is of a burning nature. The uric acid of the urine almost disappears, and can readily be detected in

the serum of the blood. One attack of gout is usually followed by a second and third seizure, till the disease eventually assumes a chronic form. The "gouty kidney" of Todd consists in a diminution in the size of the organ, the capsule being thickened and opaque, and the surface granular. Hic-cough, often troublesome to the patient, not infrequently occurs in those who have a hereditary tendency to gout. The deposits in the joints known as "chalk-stones" often lead to anchylosis of the joints, and sometimes, by a process of atrophy and ulceration, reach the surface, and become exposed. Suppuration is very rare.

The prognosis in most cases is favourable, the immediate danger to life is slight.

Diagnosis.—From rheumatism.

1. The deposit of urate of soda in the joints *does not occur* in rheumatism. These concretions however, are more frequent in chronic than in acute gout.

2. The *small joints* of the hands and feet are the seat of the primary local affection in gout; in rheumatism the *large joints* of the limbs are affected. In gout deposits may occur on the helix of the external ear. Heart complications are also rare in gout.

3. The blood in gout is abnormally charged with *uric acid;* in rheumatism *lactic acid* is present.

4. Rheumatism attacks the young; gout seldom

occurs before puberty, and is oftener hereditary than rheumatism.

Treatment.—At the commencement of an attack, the patient should be placed in bed, and the affected limb raised on pillows. A brisk purgative should be given—the sulphate and carbonate of magnesia, combined with colchicum wine, will answer the purpose. The painful joint may be surrounded by flannels wrung out in hot water, in which some common washing-soda has been dissolved, and then sprinkled with equal parts of laudanum and colchicum wine. Cold applications should be strictly avoided. To procure rest, ten grains of the compound ipecacuanha powder may be given at bed-time. In chronic gout, the bicarbonates of potash or lithia should be given with colchicum, and the removal, if possible, of all the causes which tend to produce or promote the gouty diathesis. In the early stages of an acute attack the diet should be restricted, animal food be entirely excluded, and a vegetable diet enjoined. During the intervals between the attacks, measures should be taken to correct any irregularities in the mode of life, and tonics may be given if necessary.

Anæmia

is a morbid state of the blood, in which the quantity of the red corpuscles is greatly diminished. The force of the circulation is lessened, and patients suffer from coldness of the surface of the body and extremities. The action of the heart is feeble, often

irregular. The system suffers in all its parts, the vital functions being but languidly performed. Mental depression is often most marked, and a painful sense of inertia, or indolence, is experienced. The cause of this condition of the blood is not always apparent, often obscure, generally a pathological element of some other disease. The following are some of the diseases with which anæmia is not infrequently connected:—Tuberculosis, Carcinoma, some morbid affections of the kidneys associated with œdema of the face, most wasting diseases, hæmorrhages and passive discharges, menorrhagia, hæmorrhoids, and diseases attended with a disordered state of the digestive organs and the mal-assimulation of food.

Some mineral substances, when absorbed into the system, appear to induce this morbid condition: lead and mercury possess this power in a marked degree.

The indications of treatment are to remove the cause if possible. Tonics, when necessary, should be given, especially the soluble preparations of iron; and a nourishing diet, composed principally of meat, should be recommended. Gentle exercise in the open air, cold baths and change of air, will greatly assist in restoring the disordered state of the system.

Chlorosis is a form of anæmia frequently attacking females about the age of puberty. This affection is also known as the *green sickness*, from the peculiar greenish white colour of the skin.

Purpura

is a disease consequent on some obscure morbid changes of the blood and the capillaries. The exact cause of this disease is not known. It would appear, however, to be due to a disintegration of the cell wall of the red corpuscles, and escape of their contents. Extravasation of blood through the capillaries then takes place into the various tissues of the body. Small dull red or purple spots make their appearance on the surface of the body, which do not disappear on pressure. The spots, when small, are known as *petechiæ*, when large as *vibices* or *ecchymoses*. The disease is usually attended with symptoms which point to general disorder of the constitution. The appetite is variable, and the patient complains of a feeling of languor and weariness.

It is frequently divided into two varieties—

(*a.*)—Simple.

(*b.*)—Hæmorrhagic.

The treatment will consist in attempts to remove the morbid conditions which give rise to purpura. The diet should be nutritious, and easy of digestion. The preparations of iron may be given, and astringent remedies; gallic and tannic acid will, in the hæmorrhagic variety, be indicated. Some have recommended the abstraction of blood from the arm as a rapid mode of curing the disease, whilst others have advised the administration of turpentine. Purgatives in most cases do good, and may be freely administered.

Scorbutus, or Scurvy.

The blood is the seat of the primary and essential lesions of scurvy. The disease appears to be due to the want of proper ventilation, to the deprivation of fresh vegetable food, and to exposure to cold and wet. Dr Garrod considers that scurvy arises from a deficiency of certain salts in the food, notably those of potash. It is more common at sea, in ill-ventilated and badly-provisioned ships, than on land. Patients at first complain of a feeling of general weakness and lassitude. The appetite soon fails, the pallor of the surface of the body is well marked, the gums become spongy, with a tendency to bleed spontaneously, or on the application of slight pressure. Livid patches of considerable extent form under the skin, generally harder to the touch than the surrounding tissue. The skin is dry and rough, and sometimes there is considerable œdema of the face and ankles. The slightest exertion produces attacks of dyspnœa and palpitation. Diarrhœa is sometimes present; at others, troublesome constipation. The breath is fetid, the urine high coloured, and rapidly undergoes decomposition. Impaired vision is not an infrequent occurrence.

The danger to life depends greatly on the extent of the ecchymoses, and the amount of hæmorrhage that takes place from the mucous surfaces. Death may occur from effusion of blood into serous cavities, or into the substance of vital organs.

The treatment will consist in the use of vegetables and ripe fruits, notably those of the orange order. Good ventilation is also essential as a means of cure.

Tuberculosis.

To a cachectic condition of the system, manifesting itself in the production of certain diseases known as scrofula, pulmonary consumption, tubercular peritonitis, tubercular hydrocephalus, and tabes mesenterica, the term *tuberculosis* has been applied. This state has also been indicated by the terms the *tuberculous*, the *scrofulous*, or the *strumous diathesis*.

The tuberculous cachexia is associated with a constant and steady increase of temperature, a general wasting of the body, and the development of a substance known as tubercle. The development of tubercle may take place in any organ or tissue of the body, but the lungs appear to be more frequently affected than other parts. By *tuberculisation* is understood the local process by which the elements of a part become metamorphosed into tubercle. Some pathologists consider tubercle to be an exudation or deposit; others, that it is a retrograde metamorphosis of pre-existing structures. Virchow holds that tubercle, properly speaking, is not an exudation, but that it has a cellular origin, that the cells are derived from the connective tissue, and that they rapidly multiply.

There are two varieties of tubercle, *grey* and *yellow* tubercle. Yellow tubercle is probably only a fatty degeneration of the grey. *Grey tubercle* consists in masses varying in size, composed of small roundish or oval bodies, about the size of millet seeds, imbedded in a granular matrix. It is tough, soft, semi-transparent, compressible, and of a pearly-grey colour.

The granules are more or less dissolved and the corpuscles rendered transparent by the action of *acetic acid.* Potash in solution entirely dissolves them. An inability to *progressive development* is characteristic of tubercle.

Yellow tubercle occurs as opaque masses, usually larger than the grey, friable, and having a cheesy, lardaceous consistence. The tendency of tubercle is to undergo retrograde metamorphosis; to become fatty, to dry up, or to become the seat of calcareous deposits. It appears to be tolerably certain that tubercle is not the product of inflammation, but that when present, its growth may be greatly influenced by inflammatory action. Tubercle, when it occurs in the lung, appears to be primarily deposited on the walls of the air vesicles, gradually pressing inwards, until the air cells become solid.

To chemical analysis tubercle yields animal matter and earthy salts.

To an affection of the glands of the neck attended with a tuberculous deposit in them, the term scrofula has been given.

Carcinoma.

The carcinomatous cachexia is characterised by the development of tumours in various parts of the body, which present certain peculiarities. They return after extirpation, are attended with progressive destruction of the part affected, have a tendency to infiltrate the adjacent lymphatic glands, and they often prove fatal, not through their local action, but by causing a peculiar marasmus, which ends fatally. Three well marked forms of cancer are recognised—scirrhus, or hard cancer; medullary, or soft cancer; and colloid or alveolar cancer.

In addition to the fibrous tissue of which they are more or less composed, cancers contain characteristic cell formations.

Malignant tumours are but the local manifestations of a constitutional disease, but the exact cause of their production, or the nature of the primary disease, has not been clearly made out. There are many who hold that cancer is at first a local disease, and that the constitution becomes secondarily affected.

Females are more subject to cancer than males. The uterus, the female breast, and the stomach are more frequently affected than other parts.

Leucocythemia

is a morbid condition of the blood, in which the white corpuscles are abnormally increased. In health the proportion of white corpuscles to red is

about one in three hundred ; but in leucocythemia the proportion is one in twenty, or even less. This state of the blood is very generally associated with enlargement of the spleen, liver, and, in some cases, with enlargement of the lymphatic glands of the neck, axilla, and groin.

Dr Bennett believes that this condition of the blood is due to disturbance of the ductless glands, and the derangement of their blood-forming powers. The exact nature and cause of this disease have not, however, been clearly made out.

The symptoms which accompany leucocythemia are chiefly those of anæmia. Anorexia is often present, passive hæmorrhages frequently occur, together with œdema of the legs and enlargement of the abdomen.

Dropsy.

To the collection of a serous watery fluid in a serous cavity, or in the areolar tissue, without the presence of inflammation the term dropsy has been applied.

Various names have been applied to denote the position of the effusion ; thus, when in the peritoneal cavity, it is known as *ascites* ; when the areolar tissue becomes infiltrated, and the infiltration be partial, *œdema* and *anasarca* if it be more general.

Dropsy is not a disease in itself, but rather the result of disease in one or other of the internal organs.

Dropsy may then be due to :

1. Disease of the heart, giving rise to cardiac dropsy.

2. Disease of the liver, giving rise to hepatic dropsy.

3. Congestion of the kidneys, giving rise to acute venal dropsy.

4. Disorganisation of the kidneys, giving rise to chronic dropsy.

Hepatic and cardiac dropsy are both the result of a mechanical impediment to the circulation of venous blood, and thus leading to the exudation of a watery fluid through the capillaries. If a large venous trunk be subjected to pressure, œdema of the part below the impediment is the result.

Lastly, dropsy may occur without organic disease, but due to the feebleness of the circulation and thinness of the blood. This condition occurs most frequently in chlorotic girls and elderly females. The dropsical effusion is generally in the form of an anasarca. The treatment of this form of dropsy will consist in the administration of one or other of the preparations of iron and stimulating diuretics. The general treatment of dropsy will be considered when the diseases which give rise to it come under notice in their order.

Hæmorrhage.

Under this head will be mentioned the two forms of hæmorrhage which more particularly be-

long to the province of the physician—hæmoptysis and hæmatemesis; and as it is of importance to clearly distinguish the one from the other, we shall give their points of difference in a tabular form.

HÆMOPTYSIS.

The blood, which is of a bright scarlet, comes from the lungs. It is brought up by coughing, is fluid and frothy, from admixture with air. Hæmoptysis frequently occurs during the first stage of phthisis, and is not of infrequent occurrence in valvular disease of the heart of the left side.

It accompanies, and is followed by, *pulmonary apoplexy*, a bad term, but which is used to imply a state of extravasation of blood into the air-cells and tissue of the lung, which produces crepitation in the part till the blood is absorbed.

The treatment of hæmoptysis will consist in impressing on the patient the necessity of perfect rest in a semi-recumbent posture, and he must be forbidden to speak. The room should be kept cool. Ice may be kept in the mouth, or a bladder containing ice applied to the chest. Cold drinks should alone be allowed, and medicines, as for instance the acetate of lead, or gallic or tannic acids, given at frequent intervals.

HÆMATEMESIS.

In this case the blood comes from the stomach, and is expelled by vomiting. It is of a dark purple or black colour, more or less coagulated and mixed with the food. It may be due to congestion of the liver, and consequent impediment to the portal circulation.

It may also occur as a vicarious form of menstruation, or from an ulcer of the stomach, in which latter case it is followed by melæna, that is, the passage of a portion of the blood with the stools. The blood becomes changed, is very black, and so altered as to look like tar, or even soot.

In the treatment, ice should also be allowed. If there is much congestion of the liver, a good saline purge, to relieve the portal circulation, will be necessary. Styptic medicines—alum, turpentine, and others, may be given, if the hæmorrhage still continue severe.

DISEASES OF THE RESPIRATORY ORGANS.

Catarrh.

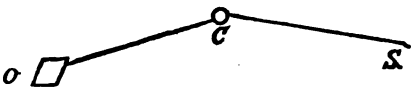
Common catarrh, or "cold in the head," is an inflammatory affection of the mucous membrane of the upper portion of the air-passages. It consists in an hyperæmic state of the vessels of the mucous membrane, attended with swelling, sponginess, and an abnormal secretion. This disease has received various names, indicating the parts affected: thus, when the nasal mucous membrane is attacked, it is called *coryza*; when the bronchi suffer, *bronchitis*, and so on. The susceptibility of individuals varies greatly, even when exposed to like conditions; and it is remarkable that the same agent which will give rise to a coryza in one, will affect the bronchial tubes or larynx of another. It may be mentioned that cachectic individuals, and those who are badly nourished, or who lead sedentary and effeminate lives, are more pre-disposed to this affection than those whose mode of living is more active, even though exposed to great variations of temperature. The exciting causes appear to be either local irritants acting directly on the part, or sudden chilling of the surface, especially when the body is exhausted, and rapidly cooling. Many drunkards appear to suffer from an habi-

tual catarrh, due, doubtless, to the extension of the catarrhal affection of the stomach, induced by the irritating action of the alcohol.

It should be borne in mind by the student, that, whenever the inflammatory process is set up in a part, it is always attended by

1. Pain. 2. Heat. 3. Redness. 4. Swelling. 5. More or less impairment in the functions of the part affected.

The most probable explanation of the mode in which cold acts in the production of inflammation in any of the internal organs—as is the case with the lungs in pneumonia—is to suppose that the effects produced are in some measure due to reflex action. A portion of the surface is suddenly chilled, and the organ situated beneath, or in nervous sympathy with it, becomes congested and inflamed. A diagram will perhaps best explain the process. Let *c* represent a nerve-centre, having nervous connection with *s* the skin and *o*



an internal organ. During health, there is a certain amount of nervous influence exercised by the nerve-centre on both skin and organ. Cold suddenly applied to the skin destroys the equilibrium previously existing, and the consequence is congestion and inflammation of the organ. The action of counter-irritants in checking inflammatory

processes may be explained by supposing that they restore the nervous equilibrium. Hence, also, the value of large opiates, and the application of warmth in the first stages of catarrh, pleurisy, &c. These doubtless act by modifying the morbid or excessive action of the nerves on the organ.

Catarrh, though seldom fatal by itself, yet when death does occur, the *post-mortem* appearances of the mucous membranes are not such as we should expect to find, from the severity of the symptoms, or from laryngoscopic observations made during life. This may be due to the contraction of the elastic fibres with which the mucous membrane of the larynx is plentifully supplied.

The symptoms which usher in an attack of catarrh are too well known to need description.

In the acute form of the disease the treatment is simple enough, consisting in the administration of diaphoretics and saline aperients, together with the use of hot baths. For an adult, ten grains of the compound ipecacuan powder at bed-time often give great relief. Sir R. Christison's treatment for cold in the head is a good dose of morphia at once—to arrest excessive nervous action—the patient being kept in the house during the next day, to avoid fresh irritation while the part is yet tender. It is only when the disease assumes a chronic form that the treatment becomes more complicated. Tonics, good ventilation, and warm clothing; all muffling up, however, should be carefully avoided. The

throat and chest may advantageously be bathed every morning with cold water, and exposure to cold draughts carefully avoided. It should be borne in mind, that though a simple affair in itself, a catarrhal affection should not be neglected, as serious complications often occur which can clearly be traced to "only a cold."

Hay Asthma.

This disease, known under the names of *hay fever*, *summer catarrh*, or *hay asthma*, may be described as an acute catarrhal affection of the mucous membrane of the nose, larynx, bronchi, and conjunctiva. It is attended with an increased mucous discharge from the nose and bronchi, watering of the eyes, and asthmatic paroxysms, which become most distressing to the patient. Hay asthma is induced in some persons by the odour of newly-mown hay; in others by the emanations from powdered ipecacuanha, and feather beds or pillows, as mentioned by Dr Austin Flint. It would appear, therefore, to be due more to some idiosyncrasy existing in certain individuals than to any specific poison, as all persons are not affected by the same agents. The treatment consists in the removal of the exciting cause, change of air, a visit to the sea-side, and tonics—quinine or iron—when indicated.

Ozæna.

Chronic inflammation of the nasal mucous membrane may be caused by repeated attacks of acute

catarrh, or it may occur in strumous subjects without any direct assignable cause. A permanent narrowing of the nasal cavities is brought about by the swelling of the mucous membrane, and from the difficulty of breathing thus induced this disease has been vulgarly called "the snuffles." It is attended with a fetid mucopurulent discharge from the nostrils, which has a tendency to harden into crusts that may be expelled by blowing the nose. Ulceration may occur; but unless the ulcers are low down, no positive diagnosis can be formed, as the odour of the discharge is not pathognomonic of this condition. The swollen state of the mucous membrane may give the idea of polypus. Careful examinations with a speculum and probe should therefore be frequently made, especially as the discharge may be due to the presence of a polypus, and a cure effected by its removal.

In the treatment of this disease, especial care must be paid to any constitutional defect. Tonics, change of air, the exhibition of cod liver oil, washing out the nostrils with a solution of nitrate of silver or sulphate of zinc. The enlarged mucous membrane may, if necessary, be touched by lunar caustic.

Laryngitis

is an acute inflammation of the mucous membrane of the larynx, sometimes extending into the submucous areolar tissue, and attended with infiltra-

tion, which greatly increases the dangerous tendency of this disease. The early symptoms of this complaint are those which usher in most inflammatory affections. To these are added symptoms which point out the locality of the affection. The voice becomes hoarse, and as the swelling increases, is entirely lost. A glairy mucus discharge, more or less tinged with blood, is expectorated, accompanied with a harsh, brassy cough. If the disease continues unchecked, the difficulty of the breathing increases, and the suffering of the patient becomes intense. When death occurs, it is due to suffocation. In adults this disease is rare; in children it is more common. It may occur in connection with scarlet fever, small-pox, and, though seldom, with pharyngitis. It may also be produced by the inhalation of irritating vapours, and often in children by swallowing boiling water. The presence of fever, together with the local pain, distinguishes it from spasmodic affections of the larynx, and the huskiness followed by entire loss of voice, from croup. The prognosis is most unfavourable when infiltration has taken place, the fatal issue rapidly ensuing. It is more fatal to adults than to children. A more favourable opinion may be given if the inflammatory affection subsides, and the breathing becomes easier and less laboured, and attended with profuse expectoration.

The treatment is that applicable to inflammatory affections in general. The local measures

to be adopted are, the application of hot poultices or blisters to the neck, the inhalation of steam, the topical application of a strong solution of nitrate of silver, and, as a last resort, the operation of tracheotomy should be performed.

Chronic Laryngitis

may occur independently of a previous acute attack. Thickening of the mucous membrane takes place, which may be attended with ulceration. The voice becomes hoarse, or entirely lost. The sputa, when ulceration is present, becomes purulent, or sanious and fetid. In most cases, chronic laryngitis is a concomitant of either syphilis or a tubercular affection of the lungs. In some cases, the act of deglutition is not attended with pain; in others, the most distressing symptoms supervene on the attempt to swallow.

The permanent morbid change in the voice, the cough, the difficulty in the breathing, together with the tenderness felt when the larynx is pressed, renders the diagnosis easy. The prognosis will of course depend upon the nature of the diseases with which it is combined.

The local treatment will consist in the application of counter-irritation to the outside of the throat, and the internal application of nitrate of silver, by means of a sponge attached to a probang. The strength of the solution used should be from

twenty to forty grains to the ounce of water. The general treatment will of course depend upon the nature of the complications present.

Influenza.

Epidemic catarrh. *"La Grippe" of the French.*

This disease appears to be due to certain atmospheric changes, several epidemics having occurred with varying mortality since the year 1510. The duration of the attack is from three to six days. The symptoms are those of specific fever of short duration with severe catarrh and bronchitis. Rigors, followed by sudden and severe prostration, with depression of the spirits, are the principal signs of this disease. The fatality in some epidemics has been large. Influenza is seldom fatal, however, except in old people, and in those of feeble constitution. In the strong and robust, the treatment consists in the free use of saline purgatives, together with diaphoretics and the careful administration of opium. Bleeding should be seldom, if ever employed. Complications should be carefully looked for, and treated on general principles. In the debilitated, and aged, a tonic and supporting mode of treatment must be adopted.

Diphtheria.

(Fr.) *Diphthérite.* (Ger.) *Diphtherische.*

Diphtheria is an inflammatory affection of the mucous membrane of the fauces, attended with

the exudation and deposit of lymph, extreme prostration, the presence of albumen in the urine, and often followed during convalescence by paralysis of the muscles which assist in the act of deglutition. The paralytic affection sometimes extends to other parts. The deposit of lymph, common in inflammations of serous membranes, is not usual in those of mucous membranes. In diphtheria, however, it would appear that this state is but the local manifestation of the disease. The false membrane, deposited in layers, is at first soft and creamy, soon becoming firm and tough, and of a salmon colour, in severe cases changing to black. When placed under the microscope, it seems to be formed of fibres, epithelium, granules, pus and blood globules, and sometimes the presence of fungoid growths may be detected. Exfoliation is generally attended with a third or even a fourth formation of false membrane. The glands of the neck are greatly enlarged. The disease runs its course in from three to fourteen days. The invasion of diphtheria is not always well marked. Rigors, followed by headache, extreme lassitude, a feeling of stiffness about the neck, and difficulty and pain on attempting to swallow, are among the early symptoms. All desire for food is entirely lost, patients often evincing the greatest repugnance to take any aliment whatever. The pulse at times quick, at others moderate, and more or less compressible; when danger threatens, becoming irregular. Hæmor-

rhage from the nostrils, often difficult to arrest, may occur. The variations in temperature are not well marked. The urine is generally loaded with albumen, the excretion of urea is also increased.

General dropsy is rare.

This disease differs from inflammatory croup in four essential points—

(*a.*) The local inflammation commences in the fauces, and not in the trachea, as in croup, and is liable to extend to the adjacent parts.

(*b.*) By beginning as a fever, instead of a catarrh and cough.

(*c.*) Croup is a sporadic affection, diphtheria often prevails as an epidemic.

(*d.*) It is attended with extreme debility that rapidly comes on, and as rapidly increases, adults usually dying of asthenia, though children may be carried off by asphyxia, from the inflammation and false membrane obstructing the larynx.

From scarlet fever diphtheria also differs.

(*a.*) The absence of the scarlet rash, followed by efflorescence.

(*b.*) Scarlet fever is rapidly developed, diphtheria often comes on insiduously.

(*c.*) In diphtheria the inflammatory affection has a tendency to spread, this is seldom the case with scarlatina.

(*d.*) The sequalæ of scarlet fever—general dropsy and albumenaria—give place to paralysis and some other peculiar nervous affections

which often occur during the convalescence of diphtheria. It may also be distinguished from pharyngitis with follicular secretion, from the fact that the deposits of the latter are pultaceous, not membranous, cannot be removed in stripes, and that it dips into the follicles.

The primary object of our treatment consists in attempting to prevent the tendency to sudden and fatal syncope, induced by the asthenic condition of the patient. The diet should be nutritious, consisting of milk, strong beef-tea, and jellies. Ice may be given if agreeable, and it will be of great assistance in checking the constant vomiting which often occurs. The local application of the tincture of steel, or a gargle containing the chlorate of potash, will be found more valuable than the application of nitrate of silver or other caustics. Bloodletting, local or general, together with other lowering measures, are contra-indicated. Alcohol, when necessary, should be given. As a last resort, recourse must be had to tracheotomy, and this operation should be performed before the patient gets too weak: better a little too soon, than a little too late.

TABLE *showing the Points of Distinction between Croup, Whooping Cough, and Laryngismus Stridulus.*

	CROUP.	WHOOPING COUGH.	L. STRIDULUS.
PREMONITORY SYMPTOMS.	Slight Fever and other symptoms of a catarrhal attack, lasting two or three days.	Those of a common catarrh, of eight or ten days' duration.	Nolle; absence of fever, &c. &c.
CHARACTERISTIC SYMPTOMS.	Cough, accompanied with a peculiar ringing "brassy" sound. Inspiration is prolonged, and the voice is hoarse.	The air is expelled from the lungs by a series of expiratory efforts; at last, when the patient appears to be on the point of suffocation, a long, protracted inspiration takes place. The air, rushing through the half-open glottis, gives rise to the peculiar noise or *whoop*. The fit of coughing ends by the discharge of a quantity of mucus.	The attack is sudden, generally in the night. There is a sudden interruption to the breathing, due to a spasmodic action of the glottis. When the spasm is relieved, the air is drawn in with a peculiar crowing sound, like a cock.
PATHOLOGY AND MORBID ANATOMY.	The formation of a false membrane in the trachea, the result of a peculiar form of inflammation.	No morbid appearances characteristic of this disease. It is contagious.	Absence of inflammation, and deposition of a false membrane. Due, probably, to some irritation of the nervous system by teething, &c. &c.

Croup.

Cynanche trachealis,—cynanche laryngea, angina trachealis,—laryngitis cruposa.

Croup is an inflammatory affection of the mucous membrane of the larynx, attended with the exudation of coaguable lymph, which in time becomes detached by a muco-purulent exudation under it, and is then expectorated in sheets or in the form of tubes. It occurs for the most part in children subsequently to the primary dentition, and up to the seventh or tenth year of age. It is more prevalent in damp places, with northerly aspects, than in southerly and protected parts. The exciting causes of croup are not always apparent. Males are oftener attacked by this disease than females.

The chief seat of the false membrane is the larynx, then in the trachea, and lastly extending into the bronchi.

The symptoms of the *first stage* of croup are those of an ordinary cold, except in those cases where the disease has caused death in a few hours. During the *second stage*, the cough is accompanied with a peculiar *brassy* ringing sound, like the crowing of a young cock. Each inspiration becomes more prolonged, and is attended with a harsh crackling noise. The pulse is frequent and sharp. The disease appears to increase in severity towards night. The desire for drink is great, and the act of swallowing is

not usually attended with pain. If the disease has not been checked, the *third stage*, ending in death ensues. The child may die either in a state of coma, or in a paroxysmal attempt to breathe.

The prognosis should always be very guarded, especially if the disease be attended with any lung complication.

The treatment to be successful must be prompt. The patient should be put without delay into a hot bath, and an emetic of antimony and ipecacuanha administered. Confinement to bed is absolutely necessary, and a saline mixture containing small doses of tartar emetic should be exhibited every few hours. Bleeding in any form should not be used. The atmosphere of the room should be kept moist by the introduction of steam. Some prescribe the application of cold compresses to the throat, and large doses of sulphate of copper till vomiting be produced. Calomel is also lauded by others.

The prophylactic treatment consists in not confining the child to one room, or clothing it too much, but in the careful avoidance of exposure to northerly or north-easterly winds.

Laryngismus Stridulus.

This disease consists in spasm of the small muscles of the larynx. It is essentially a disease of early childhood, especially occuring during the first year of infantile life, and also during the period of cutting the teeth.

It comes on suddenly; the child may be in its cradle, when it is heard struggling for breath. The countenance becomes purplish, the respiration impeded, and attended with a peculiar whistling sound during inspiration. The attack soon subsides, and the child, as soon as it recovers from its fright, may drop off to sleep again. The paroxysm from the slightest cause is likely to return.

The treatment consists in placing the child in a warm bath, and by adopting those measures found most efficacious in the convulsive attacks to which children are liable. The cause should then be sought and removed.

Whooping Cough.

Pertussis—*pertussis*, a continual cough—is a disease of early childhood, in rare cases occuring in adults. To children under five years of age it is very fatal. No anatomical appearances present themselves after death, beyond those which attend ordinary bronchitis. The disease may be described as a cough, having a more or less paroxysmal tendency, often assuming a suffocative character, and attended during the inspiratory movement with the characteristic whoop. The disease is contagious, and occurs oftener as an epidemic, than in isolated cases, one attack giving complete immunity from further visitations.

The first stage of the disease in some cases is

that of a common catarrh, accompanied with an obstinate and persistent cough; profuse expectoration of a clear viscid mucus succeeding each paroxysm. In others, the premonitory symptoms are those of bronchitis attended with great fever, and dyspnœa. These symptoms are succeeded by the convulsive stage, with its characteristic cough. The paroxysm begins with a series of violent respiratory acts which follow each other so quickly that inspiration is for a time prevented. A long and difficult inspiration—the harbinger of the patient's safety—now takes place; the air as it rushes in through the half-closed glottis giving rise to the peculiar crowing sound. The most frequent complications which may occur during the course of this disease, are those which relate to the respiratory organs, on the one hand—pneumonia, bronchitis, interlobular emphysema, pleurisy, capillary bronchitis, and phthisis; and on the other, the brain and nervous system—congestion of the brain, hydrocephalus, and convulsions. Though rarely fatal in itself, except in very young children, it becomes so when complicated with any of the above-mentioned affections.

The treatment has now to be considered. Nearly every drug in the pharmacopœia has at some time or other, been declared a specific. As the curative measures appear so unproductive of good results, we may try what

may be done by way of prophalaxis. Taking into consideration the epidemic character of the disease, children should if possible be removed from the infected locality, especially if they are delicate or strumous. Confinement to one room, in which a uniform temperature is maintained during the day and night, should be enjoined, and all exposure to cold avoided. A trip to the sea side will often effect a cure when all other means have failed. If drugs are employed, belladonna, together with the bromide of ammonium, or the sulphate of zinc with belladonna, will most probably be found to afford the greatest relief. During the third stage, that is, when the disease begins to decline, a meat diet, with eggs and wine, accompanied with the exhibition of feruginous tonics is indicated.

The following TABLE *will show the various forms of dyspnœa, and how they may be distinguished.*

CARDIAC.	BRONCHITIC.	ASTHMATIC.	EMPHYSEMATIC.
Intolerance of the slightest exertion or of the recumbent posture. The breathing has a panting and gasping character. The dyspnœa is more a breathlessness than a difficulty of breathing. It is due to the enlargement of the heart, aneurismal tumours, &c.	The breath is short, crepitus, and attended with cough, due to diminished size of air tubes, and accumulations of mucus.	The breath is often long drawn, dry, and without cough. There is a peculiar wheezing sound, showing bronchial contraction, due to spasm of the fibres surrounding the air tubes.	Constant, varies but slightly, and there is no wheezing.

The following table taken from Hooper's *vade mecum* may be found useful.

SOUNDS PRODUCED BY THE PASSAGE OF AIR IN INSPIRATION.

Natural.

Tracheal; in the neck, and at top of the sternum.

Bronchial; near the top of the sternum, and between the scapulæ.

Vesicular; on most other parts of the chest.

Morbid.

Bronchial respiration; from condensed lung.

Cavernous; *Amphoric;* } in cavities communicating with the bronchi.

Râles and Rhonchi.

Moist
- *Mucous;* liquid in bronchi.
- *Crepitation;* viscid liquid in small tubes and air cells.
- *Gurgling;* liquid in cavity.

Dry
- *Dry crepitation;* in emphysema.
- *Cavernous rhonchus;* in cavity destitute of fluid.
- *Sibilant and Sonorous rhonchus.* — Contraction of bronchi, by swelling of mucous membrane, pressure, or tenacious secretions.

Sounds of the voice transmitted through the chest.

Healthy.

- *Laryngophony ;* over larynx.
- *Tracheophony ;* over neck and upper part of sternum.
- *Bronchophony ;* near top of sternum, between scapulæ, &c.
- *Fremitus ;* or *vocal vibration,* felt by hand in many parts of chest.

Morbid.

- *Bronchophony ;* sound of voice through condensed lung.
- *Ægophony ;* the same vibrating through a thin layer of fluid.
- *Pectoriloquy ;* the same in the cavity of the lungs.
- *Tinkling, &c. ;* a changed echo of voice or cough, in a large cavity containing air and liquid.

Sounds produced by the motion of the lungs.

Friction sounds, when the pleuræ are dry or rough from deposit.

Sounds produced by succussion.

A splashing sound, when the cavity of the pleuræ, or a large tuberculous cavity, contains fluid mixed with air.

Sounds produced by the contraction of the muscles.

Vibratory sounds of varying intensity.

The physical signs which distinguish Bronchitis, Pneumonia, and Pleurisy, from one another are the following :—

	Bronchitis.	Pneumonia.	Pleurisy.
Percussion.	Resonance of health.	Slight, or moderate dulness, increasing with the severity of the disease.	Dulness, when effusion has taken place.
Auscultation.	The dry and moist sounds absent at first onset of the disease, become more marked in a later stage.	Crepitant râle in the first stage. When solidification occurs, *bronchial respiration, bronchophony* and *whispering bronchophony* are the signs.	A rubbing "to and fro" sound, heard during respiration.
Sputa.	At first, glairy frothy mucus, becoming thicker and of a yellowish or greenish colour.	At first, scanty, clear, and viscid ; then semi-transparent, adhesive with a reddish tint, like that of iron rust ; the colour due to blood corpuscles.	None, unless complicated with Bronchitis or Pneumonia.
Pain.	Dull, when present, with a feeling of soreness and rawness.	Sometimes absent, at others acute.	Acute pain in the side. This is not diagnostic, as it may occur in intercostal neuralgia, and pleurodynia.
Part Affected.	Bronchi and air tubes.	Parenchyma of the lung.	The pleuræ covering the lung.

Bronchitis

is an inflammatory affection of the mucous membrane of the bronchial tubes, the diseased action often extending into the pulmonary vesicles. It has been divided into acute, chronic, and plastic or croupous bronchitis. The following are among the predisposing causes of this disease.

(*a*). Early childhood, especially during the period of dentition.

(*b*). Old age.

(*c*). Improper food, and faulty hygienic conditions.

(*d*). Previous bronchial attacks.

The exciting causes may thus be tabulated.

(*a*). The circulation in the bronchial vein may be impeded, giving rise to hyperæmia of the lungs.

(*b*). The same condition may occur if any impediment be placed on the circulation of the great vessels of the aorta.

(*c*). Irritants acting directly on the mucous membrane of the air tubes. Coal heavers, stone cutters, millers, and others engaged in like trades frequently suffer from this disease.

(*d*). Sudden chilling of the external surface of the body.

(*e*). It may form one of the complications of typhoid, or any of the eruptive fevers.

(*f*). Certain not well-ascertained atmospheric changes may give rise to epidemic forms of this disease.

The symptoms which usher in an attack of acute bronchitis, are those which commonly attend a "cold." The respiration as the disease becomes more pronounced, is hurried ; there is a sensation of tightness, accompanied with a feeling of soreness about the chest. Pain when present, generally follows a fit of coughing, and is of a dull aching character, felt beneath the sternum. The pulse is quickened, regular but feeble. The cough is at first dry, but is soon accompanied with the expectoration of a small quantity of clear, frothy ; viscid mucus, which is at first slightly saline to the taste. With the advance of the disease, the matter expectorated becomes thick, of a yellowish or greenish colour, and sometimes streaked with blood.

The physical signs of bronchitis are important. Percussion gives no direct result, for the resonance of health is unimpaired. The results of auscultation in the early stage are often negative. After a time, however, the respiratory sounds become modified, and are distinguished into the *dry* and the *moist*. Obstruction of the bronchial tubes due to the tumefaction of their lining membrane gives rise to the first ; whereas the latter are caused by the

presence of mucus, through which the air passes in its entrance into, and exit from the lung. The *dry* sounds when situated in the large tubes are called *rhonchus*, when in the smaller, *sibilus*. The term *crepitus*, which may be either *large* or *small*, having reference to the size of the tubes in which it occurs, is applied to the moist sounds. It should be borne in mind that the respiratory murmur over a portion of the chest, may be temporarily suppressed, owing to the obstruction of a bronchial tube by mucus.

Acute bronchitis, when not complicated with other diseases, is not usually fatal, except when it occurs in the young, the old, and the delicate. In these subjects the danger is due to plugging up of the bronchial tubes by inflammatory products. Death then occurs from apnœa.

The treatment of uncomplicated acute bronchitis is simple enough. At the very onset of the disease, that is, during the catarrhal stage, a diaphoretic combined with a full dose of opium, may arrest, or at least modify, the bronchial attack. It is usual to give ten grains of the compound ipecacuanha powder, in some hot gruel just before going to bed; to have the feet placed in hot water, to be followed in the morning by the administration of a saline aperient. The patient, in severe cases, should be kept in a moist atmosphere, at a uniform temperature. The application of hot poultices, or a

stimulating liniment to the chest often affords great relief.

In the first stage of the disease, expectorants are contra-indicated, in the second, when the expectoration becomes loosened, they may be given with advantage; those most usually employed are squill, ipecacuanha, tartar emetic, and the carbonate of ammonia. Blood-letting is seldom called for, except in the plethoric, or when the inflammatory fever is intense.

Chronic Bronchitis

seldom occurs except in those who have passed middle life. It may occur, however, in the young as the sequel of the acute form of the disorder. The primary symptoms are those of acute bronchitis, but less severe. The expectoration is sometimes profuse, often coughed up in pellet-shaped masses. Emphysema attended with great dyspnœa is often a result of repeated attacks of chronic bronchitis.

The post mortem appearances of this form of bronchitis are those of inflammation generally. The air tubes are more or less choked up with tenacious mucus, sometimes with a muco-purulent fluid. Here and there a portion of the lung may have entirely collapsed. The manner in which this state is brought about is very simple; a portion of mucus is forced by every

inspiration from the large into a smaller bronchial tube, expiration again moves it forward, allowing all the air to escape from the air cells beyond the obstruction; another inspiration forces it further down; and this process is continued till all the air has been expelled from the air cells beyond the plug, and collapse of that portion, so cut off, is the result. Dilatation of the bronchi, together with emphysema are very commonly found after death.

Before adopting any particular mode of treatment, the general condition of the patient should be considered. If weak and debilitated, a generous easily digested diet should be enjoined, with tonics. Ammonia, squill, senega, and other expectorants may be administered. The balsam of copaiba, the muriate of ammonia, and the chlorate of potash have been lauded by some. The dyspnœa may be best relieved by the inhalation of steam. In the gouty, or those who have suffered from syphilis, colchicum or the iodide of potash should be given with the other medicines used.

Plastic, or Croupous Bronchitis.

This is a form of bronchitis of extreme rarity. It consists in the exudation of coagulable lymph on the mucous lining of the inflamed bronchi. It may exist *per se*, or it may be simply an extension of a croupous or diphtheritic state of the trachea

or larynx. The only diagnostic sign of this disease is, of course, the expectoration of the false membrane. The treatment is the same as that adopted in the other forms of bronchitis.

Asthma.

This disease, having its origin in certain morbid states of the nervous system, consists in the obstruction of the bronchi, especially the smaller tubes by tonic spasm of the organic muscular fibres that enter into their construction. The predisposing causes of this affection are very obscure, there is every reason, however, to believe that it is often hereditary. It may occur in children as well as in adults, in males, more frequently than in females. The exciting causes in most cases appear to depend on atmospheric changes. Certain localities also, it would seem, possess a peculiar obnoxious power over those predisposed to asthma. Laborious breathing attended with great dyspnœa, characterise a paroxysm. Every effort is made to breathe, the respiratory muscles are brought powerfully into action, the nostrils are dilated, and the whole expression of the face is one of extreme terror. The act of inspiration is attended with a spasmodic effort, and expiration is prolonged and accompanied with a wheezing sound. The face becomes

pale, often assuming a bluish tint. The voice is almost lost for want of breath. The pulse is small and feeble, and the surface of the body is often bathed in a cold clammy sweat. The *post-mortem* appearances in cases where the disease proves fatal, are those of bronchitis and emphysema, with which it is more or less always accompanied.

The diagnosis is not difficult when the symptoms as just described are taken into consideration. As far as immediate danger is concerned, the prognosis is far more favourable than the severity of the symptoms would lead one to suppose.

The indications for treatment are, first, to diminish as much as possible the suffering, to mitigate and shorten the paroxysms, and then to take measures to prevent their recurrence. In our attempts to stop the paroxysm, the past experience of the patient will be of great assistance.

The inhalation of ether or chloroform, the smoke from brown paper, or a pipe or two of stramonium, are often of great service. In cases uncomplicated with bronchitis, a full opiate may be given; in others, nauseant remedies are found of most use. If the attack has been induced by an overloaded stomach, an emetic or brisk purgative is indicated. The preventive measures consist in removal from the obnoxious locality,

and from those influences which experience has shown to be peculiarly prejudicial.

Pleurisy.

Acute pleuritis. Inflammation of the pleuræ.

1. *Acute pleurisy.* 2. *Chronic or sub-acute pleurisy.*

Inflammation of the serous membranes, or pleuræ which surround the lungs, is known as pleurisy. It may be produced by injuries to the walls of the chest, such as fracture of the ribs, or by penetrating wounds. It may also be due to the effects of cold, or it may occur as a concomitant in Bright's disease of the kidney, acute rheumatism, and as a sequel to the eruptive fevers. It is rare in infancy and old age, being more frequently a disease of youth and middle life. The chronic or sub-acute form, is less often met with than the acute.

An attack of acute pleurisy, may be divided into three stages :—

1. The stage of inflammation.

2. The stage of effusion.

3. The stage occupied in the removal of the effusion.

For a day or two previous to the first stage, some amount of pain or tenderness may be experienced in the region of the chest.

The *stage of inflammation* sometimes sets in with a well marked chill, followed by rigors; at others, only a sensation of chilliness is experienced. Intense pain of a cutting or a stabbing nature, augmented by the act of inspiration, is felt early in the inflammatory stage. The pain is sometimes described as a "stitch in the side." Coughing, sneezing, or the slightest movement of the body tends to increase the pain. Acute pleurisy is always attended by more or less pyrexia, and the usual signs and symptoms of fever are present. The act of coughing is suppressed as much as possible. Expectoration is slight, consisting chiefly of simple mucus. The respirations are increased in frequency, and are much shortened by the patient. The physical signs of this stage are the well known *friction sounds*, caused by the rubbing together of the inflamed surfaces of the pleuræ. The sounds soon cease, their cessation being due to one of three causes :—

The inflammation may terminate in resolution.

The inflamed pleuræ may become glued together by a process known as *adhesive inflammation.*

An effusion of serum may take place into the pleural cavity, and a condition known as HYDROTHORAX may ensue.

The *stage of effusion* is generally marked by a diminution of the acute symptoms; the pain is

lessened; the act of coughing is not attended by the acute pain of the first stage; the respirations are still more or less quickened, the quickening depending on the amount of effusion and compression of the lung.

If the quantity of the effusion is large, dyspnœa may occur, and the patient may find it impossible to maintain a recumbent posture.

When suppuration takes place within the pleural cavity, and pus is formed, a condition known as *empyema* ensues. Empyema may be *true* or *false*—true, when due to inflammation of the pleura; false, when caused by the rupture of an abscess in the lung, and escape of its contents into the pleural sacs. The physical signs which mark the stage of effusion are, diminution of the respiratory sounds; the vesicular murmur becomes almost inaudible, bronchial breathing is heard, and *bronchophony*, or bronchial voice, is also present. Bronchophony is often attended by a peculiar bleating sound, known as *ægophony*. The amount of dulness on percussion will depend on the quantity of the pleuritic effusion.

The patient now generally prefers to lie on the affected side; in the first stage of the disease, he usually reclines on the healthy side.

The *stage of absorption* is marked by the disappearance of the fever, and by a marked freedom from pain and cough. The respirations gradually approach the normal standard as the

effusion becomes absorbed. The physical signs of health become more and more apparent.

Pleurisy is a unilateral disease, most frequently affecting the pleura of one side only, and then usually the left.

Diagnosis.—The pain is not, when taken alone, a diagnostic symptom, for it is present in intercostal neuralgia and pleurodynia; pleurisy may, however, be overlooked, when the pain is but slight. The presence of the "friction sound" is important. The crepitant râle of pneumonia will at once distinguish pleurisy from pneumonia. During the stage of effusion, there will be marked dulness on percussion, modified by the position in which the patient is placed, the fluid gravitating to the lowest point.

Prognosis.—In simple acute pleurisy the prognosis is always favourable; the danger to life will depend upon the nature and severity of the complications.

Treatment.—In the first stage, if the patient is robust and plethoric, with a strong noncompressible pulse, and suffering from great pain and oppression, general bleeding will afford great relief. Dry or wet cupping may be resorted to, or the application of leeches may prove useful. Hot linseed-meal poultices, or the application of a blister to the chest should be used, if general or local bleeding be deemed unadvisable. Opium in doses large enough to relieve pain, is

not contra-indicated. Saline purgatives, combined with medicines which have a sedative effect on the circulation, should be given at the very outset of the disease.

To cause absorption of the effusion, drastic purgatives may be used with care; the application of blisters, or painting the chest with the tincture of iodine, or the inunction of mercurial ointment, may be tried. Diuretics, the acetate of potash combined with squill and digitalis, are most likely to prove effectual. The strength of the patient should be supported by a nourishing diet. If these measures fail to remove the fluid, recourse may be had to the operation of paracentesis thoracis.

Chronic Pleurisy

may occur as a sub-acute affection from the first, or it may follow an acute attack of pleurisy. The symptoms are less marked than in the acute form; and like causes are instrumental in the production of the acute and chronic forms of this disease. The treatment is the same as in the acute form; but the patient will require the administration of tonics, and the adoption of supporting measures.

THE SEVERAL KINDS OF EFFUSION WHICH MAY BE FOUND IN THE PLEURAL SAC ARE

(*a.*) An effusion of serum of a yellowish green or straw colour, containing particles of coagulated fibrine, and occurring during the course of acute

pleurisy, and the result of the inflammatory process.

(*b*). Purulent exudation, empyema, the result of acute pleurisy. The quantity of pus may vary from a few ounces to many pints, and may then cause a bulging of the thoracic walls. The pus formed may be healthy, or it may be seropurulent.

(*c*). Hydrothorax. In this case the fluid is not the result of inflammatory action, but "a passive dropsy of the pleura." This condition generally co-exists with disease of the heart and great vessels, or with dropsy in other parts. The fluid is distinguished from that, the result of pleurisy, by the absence of coagulated fibrine, and the inflammatory changes in the pleural surfaces are wanting.

The diagnostic signs are, bulging of the side affected, dullness on percussion, if the quantity of the fluid be great, together with diaphragmatic breathing. The heart may be more or less displaced. The affected side during respiration is almost motionless, and the respiratory sounds are lost.

Pneumonia.

Pneumonia is an acute inflammation of the parenchyma, or substance of the lung. This disease is ushered in by symptoms which denote acute inflammatory action. Nausea, pain in the

side, and quick pulse, sometimes reaching from 120 to 150 beats a minute, together with thirst, and increase in the temperature of the body, mark the invasion. Pneumonia more frequently occurs in the right than in the left lung, but it may occur simultaneously in both, and is then spoken of as "double pneumonia."

An attack of pneumonia may be divided into three stages:—

1. The stage of congestion or engorgement.
2. The stage of solidification or hepatization.
3. The stage of suppuration or purulent infiltration.

The third stage in favourable cases is called *the stage of resolution.*

The stage of congestion is attended with symptomatic febrile movement, with pain in the side affected, with cough, and the expectoration of a scanty, transparent, viscid mucus. This soon, however, becomes semi-transparent, adhesive, and has a reddish tinge, not unlike that of iron rust, the *rusty sputa* of pneumonia. The coloration is due to small quantities of blood. The temperature of the body may rise to 104 F.; a sudden increase in the temperature marking the invasion of another lobe of the lung. If auscultation be practised during this stage, a sound known as *minute crepitation*, or crepitant rhonchus is heard. Early in the attack, percussion gives the resonance of health, but this, as the lung solidifies, becomes obscured.

If the disease be not arrested, the second stage, that of *solidification*, or *red hepatization* ensues. The lung becomes solid, and when cut into, it resembles liver or spleen, its spongy structure being entirely lost. The minute crepitation heard during the first stage disappears, and is replaced by bronchial respiration, bronchophony, and whispering bronchophony. There is dulness on percussion over the whole of the affected part.

The third and last stage of pneumonia is that of *grey hepatization, or purulent infiltration.* The pus formed is generally diffused through the pulmonary tissues—seldom circumscribed in an abscess. Gangrene of the lung is a rare termination.

Delirium tremens is often a severe complication in the intemperate when attacked by pneumonia.

The prognosis will depend upon the extent of the lung involved, and the constitution of the patient. In most cases death takes place by asthenia, combined with apnœa, but more frequently by the former alone.

Treatment.—The usual methods adopted in the treatment of inflammation generally, are applicable in pneumonia. Free purgation, bleeding in the robust and plethoric, hot poultices to the chest, and the administration of sudorifics and diuretics will form the principal aids to recovery. Expectorants are not indicated. Tartar emetic in small doses will be useful, if the inflammatory action is very great. Attention should be paid to the past

history of the patient; any hereditary tendency should be noticed. Pneumonia occurring in a patient of a gouty diathesis will often be relieved by the administration of colchicum, together with the appropriate medicines for pneumonia. During the second and third stages the general indication is to support the strength of the patient. Alcohol, tonics, and a nutritious diet will be found necessary.

TABLE *showing the physical signs of pneumonia, emphysema, and pleuritic effusion.*

	PNEUMONIA.	EMPHYSEMA.	PLEURITIC EFFUSION.
AUSCULTATION.	Fine crepitation, bronchial breathing, and bronchophony.	Indistinct respiratory murmur, prolonged inspiratory and expiratory sounds. Dry crepitation.	The respiratory sounds are lost below the level of the fluid. They are at first bronchial.
PERCUSSION.	Dulness increasing as the disease proceeds.	Morbidly clear sound, and greater resonance than natural. The sound is not, however, tympanitic as in pneumo-thorax.	Dulness in all postures when the effusion is very great. Displacement of the heart, and modification of its sounds. If the patient stand, there may be dulness only partial, greater low down where the fluid gravitates. The dulness supervenes more rapidly than in pneumonia. The transition from dull to healthy is very abrupt. Effusion also intercepts the slight fremitus, or vibration, which accompanies the voice, in all parts of the chest.

Emphysema.

There are two forms of this affection, the one known as *interlobular*, or *interstitial emphysema*, the other as *pulmonary* or *vesicular emphysema*. The former is due to the infiltration of air into the interlobular areolar tissue, or into the subpleural areolar tissue; the latter to enlargement of the air cells, atrophy of their walls, and obliteration of their vessels. The symptoms which mark the pathological condition of emphysema, are laboured respiration and dyspnœa, occuring in paroxysms. The sufferer is unable to indulge in any violent exercise. The surface of the body often presents the appearance of venous congestion, owing to an accumulation of blood within the right cavities of the heart.

The development of emphysema is usually slow. Opinions vary as to the causation of this disease; it has, however, been suggested by some, that the plugging of a portion of the bronchial tubes by mucus in acute bronchitis, and subsequent collapse of the air cells so cut off, may account for the enlargement of the cells in connection with unobstructed tubes. It is often a sequel to bronchitis.

The physical signs of this condition are, abnormal expansion of the chest, increased resonance, with weakened respiratory murmur.

The prognosis is favourable, the disease being seldom fatal by itself.

The treatment resolves itself into the treatment of the bronchitis, with which it is usually associated, and attempts to shorten the paroxysms when they occur. The iodide of potash in some cases possesses a marvellous effect, and should always be tried.

Pneumothorax

may be due—

1. To an opening in the pulmonary or parietal pleura.
2. It may be secreted.

Penetrating wounds of the thoracic walls, or the rupture of a vomica, are the chief causes which give rise to this condition.

The signs by which the presence of air in the pleural cavities may be detected, are, a morbidly clear tympanitic sound on percussion, and almost total loss of the respiratory murmur on the side affected. *Amphoric resonance* accompanies the breathing, and there is a metallic ringing sound with the voice and cough. The respiratory murmur on the sound side is increased in distinctness. Pneumo-thorax, may be complicated with hydro-thorax ; a splashing sound will be heard on succussion where this is the case.

Phthisis.

Pulmonary tuberculosis, or pulmonary consumption, consists in a deposit in the lungs of a morbid product, called tubercle, which undergoes

the several phases of deposit, suppuration, ulceration, and discharge. The deposit of tubercle in the lung is but the local expression of a special condition of the system, known as the tuberculous cachexia, already described—(*see* Tuberculosis, page 63). Tubercles are sometimes congenital and inherited, but are more frequently deposited during youth, in those of a tuberculous or scrofulous diathesis, induced by vitiated air, unhealthy occupations, and a poor diet. The age at which phthisis generally makes its appearance is from 18 to 25.

Pulmonary consumption has been divided into *acute* and *chronic;* the former is a very rare affection. When it does occur the invasion is sudden, the symptoms greatly aggravated; hectic fever, profuse sweating, and diarrhœa rapidly follow, and death may take place in from three to twelve weeks, from exhaustion, or the extension of the tuberculous affection to the membranes of the brain.

Symptoms.—The early symptoms of phthisis are obscure; slight cough and dyspnœa on exertion, fugitive pains in the chest, loss of flesh, with concurrent loss of weight, debility, hectic flushes on the cheek, quickening of the pulse towards evening, disturbed sleep, and impaired digestion. In women, the catamenia may be arrested. Diarrhœa occurs in a large proportion of cases. Sooner or later, an attack of hæmoptysis occurs: the patient is alarmed and seeks advice.

On examination of the chest, slight dulness on percussion is found upon and below one clavicle, especially as compared with the other side. Tubercles are first deposited in the apex of the lung, particularly of the left side; and that side will be flatter than the other, and will not rise so freely during inspiration.

Auscultation elicits the following respiratory sounds: *broncho-vesicular*, denoting moderate or slight solidification; *bronchial*, considerable or complete solidification; and *cavernous*, the presence of cavities.

As the disease proceeds, suppuration and ulceration take place in the substance of the lung, and a vomica or cavity is formed, which at length opens into a bronchial tube, and its contents are expectorated. The cavity is lined by a false membrane that continues to secrete pus. It is considered probable by some that vomicæ may heal by contraction of their walls, but this must be of exceedingly rare occurrence from the constant expansion of the chest in respiration. The expectoration now consists of pus and tubercular matter combined, having a distinct straw colour, and sinking in water. A gurgling sound, combined with large crepitation, is now heard over the cavity, followed by a clear sound of the voice called *pectoriloquy*, as if the patient was actually speaking in your ear. To produce this sound, the vomica must be empty near the surface of the lung, and freely communicating with

a bronchial tube. The cavity must not be too large, for over a large vomica there is heard a hollow sound of the voice, and cough and respiration known as cavernous, or amphoric resonance. It is from an old vomica that the sputa most peculiar to phthisis comes, called *nummular sputa*, consisting of circular greenish purulent masses, that remain distinct in the vessels in which they are spat.

Hæmoptysis is most frequent in the early stage of phthisis, when the presence of the tubercles first excite congestion of the adjacent parts of the lung. It is then in very small quantities, coming from ruptured capillaries. In the latter stages of the disease, when it may prove almost instantly fatal, it proceeds from some large vessel either ruptured or ulcerated in a vomica. Fatal hæmorrhage would be far more frequent were it not for the fact that the arteries are usually secured by a plug of coagulum before the ulcerative process sets in. Vomicæ very seldom open into the pleural cavity; when they do there is immediate and severe dyspnœa, from air entering the pleural cavity and compressing the rest of the lung.

Tubercles may be deposited during the course of consumption in almost every organ and structure of the body.

Bulbous enlargement of the tips of the fingers, together with a curving in of the nails, due probably to mal-nutrition of the matrix of the

nail, has been frequently noticed in the course of phthisis.

Treatment.—There are three chief indications in the treatment of phthisis :—

1. To support and improve the condition of the patient.
2. To obviate congestion of the lungs.
3. To soothe the cough.

The first indication is answered by a generous and nutritious diet, and the exhibition of cod liver oil. Exercise in the open air, a strict regard to hygienic measures, together with tonic medicines, will greatly tend, if not to cure, at least to prevent the rapid course of the disease.

The second and third indications will be best answered by residence in a moderately warm climate; the warm air soothes the bronchial tubes, and prevents internal congestions by keeping the blood on the surface. Mixtures containing morphia, phosphoric acid, or the hydrocyanic acid, with some sweet demulcent may be given if necessary.

Cancer of the Lung.

Carcinoma of the lung is a rare affection ; when it does occur as a primary disease it is usually of the medullary, or encephaloid variety. It must be distinguished from pulmonary tuberculosis and chronic pneumonia by the absence of the symptoms which betoken these diseases.

DISEASES OF THE CIRCULATORY SYSTEM.

INFLAMMATORY AFFECTIONS OF THE HEART.

Pericarditis

or inflammation of the pericardium, attended with more or less effusion of serum into the pericardial cavity.

The disease may be divided into three stages: the first ends when effusion has taken place in sufficient quantity to be appreciated by physical signs; the second is the stage of effusion; and the third that of recovery.

Exclusive of any traumatic origin, pericarditis is most frequently a secondary affection, often occurring in the course of acute rheumatism, in Bright's disease of the kidneys, and in the eruptive fevers.

The development of the inflammatory action is attended with more or less pain in the precordial region; sometimes the pain is acute and lancinating, not unlike the pain in pleurisy, for which disease at this stage it may be mistaken. An irritable suppressed cough is often present, accompanied with some dyspnœa, and the countenance of the patient expresses great anxiety

and distress. The pulse quickened, becomes smaller and harder, and sometimes irregular and intermittent. Pain is experienced on pressure in the region of the heart, or under the cartilages of the ribs. If the disease is not now arrested in its course, the symptoms become aggravated; there is pain on swallowing, explained by the fact that the œsophagus is in contact with the pericardium; a tumultuous action of the heart, high fever, great anxiety expressed by the patient, and inability to lie on the left side, together with marked nervous derangement. Auscultation in the first stage detects the "to and fro" sound due to the rubbing together of the dry inflamed surfaces of the pericardium; there is also increased intensity of the natural sounds. This soon ceases, either from the presence of effusion, or the glueing together of the opposite surfaces of the pericardium. The proper heart-sounds also become muffled and weakened. It is seldom that pericarditis proves fatal in the acute stage, the patient usually recovering, but with his pericardium more or less adherent to the heart, except just at the apex. The ultimate effect after the lapse of some years is that the heart undergoes atrophy and diminution in size. It may, however, prove fatal in the acute stage when the effusion is considerable from pressure on the auricles, causing death by asphyxia.

The treatment of pericarditis includes also the treatment of the disease with which it may be

associated. When it occurs in acute rheumatism, very little is necessary beyond the usual methods adopted for that disease. Saline purgatives, with a restricted diet, are indicated in the first stage. Opium is invaluable in this affection, and should be given in sufficient doses to relieve the general and local symptoms. Blisters are not applicable at the outset, but hot and anodyne poultices will be found of great utility. The belladonna plaster applied over the region of the heart will often afford great relief. During the second stage—that of effusion—the removal of the effused fluid is called for. The application of blisters, or painting the precordial region with iodine, together with the administration of cathartics and diuretics, will best meet the requirements of the case. During the third stage any undue excitement must be avoided, and measures taken to strengthen the system, and the action of the heart.

Endocarditis

or inflammation of the membrane lining the cavities of the heart and valves, is attended with symptoms not unlike those which accompany pericarditis, with which it is frequently associated. On auscultation a murmur is detected like that heard in cases of chronic valvular disease. The murmur is usually of a soft bellows character, of mitral origin, and accompanying the first sound of the heart, being heard loudest at or near the

apex of the heart. If during the course of an attack of rheumatic fever, a murmur occurs which was not present at the outset, endocarditis may be diagnosed.

Endocarditis is not likely to prove fatal in the acute stage, but its after effects are more serious than those of pericarditis, because the valves never recover their healthy condition. Hypertrophy and dilatation of the heart often ensue, the patient dying prematurely of dropsy. Sometimes the little nodules of fibrine on the valves —the product of the inflammatory action—become detached, and entering the circulation are carried and lodged in some distant artery, as one of the cerebral arteries, and cutting off the supply of blood, lead to mal-nutrition, softening of the brain, apoplexy, and paralysis. The plugging of one of the arteries of the extremities may occur, and gangrene of the limb ensue. This condition is known as embolism.

Endocarditis is generally limited to the left side of the heart, and like pericarditis, it is generally associated with other diseases.

Treatment.—For the most part the treatment recommended to be adopted in pericarditis, is applicable in this disease. The administration of alkalies is indicated, in the hope that they may reduce the excess of fibrine, or render it more fluid, and thus prevent its deposit on the valves of the heart.

Myocarditis

is an extremely rare affection, consisting in inflammation of the muscular structure of the heart. It is generally associated with pericarditis or endocarditis.

Suppuration may take place, the pus being discharged into the pericardium, or into one of the cavities of the organ. The presence of myocarditis cannot be detected during life.

STRUCTURAL DISEASES OF THE HEART.

VALVULAR DISEASES OF THE HEART.

In the greater majority of cases, the valves of the left side of the heart are most frequently affected, viz.: the aortic and mitral.

The appearances which the valves present after death vary greatly; in some cases they may be merely thickened and contracted, in others they may be covered with vegetations differing in size. They may also be the seat of atheromatous or calarious deposits. Before proceeding to describe the signs and symptoms which mark the presence of valvular disease, it may be as well briefly to review the nature and causes of the healthy sounds of the heart.

If auscultation be practised over the region of the heart, two well-marked sounds following each

other in rapid succession, succeeded by a pause, may be distinctly heard.

The first sound is dull and prolonged, preceding the pulse at the wrist, and coinciding with the impulse of the heart.

The second is a shorter and sharper sound, following close upon the arterial pulse, and succeeded by a period of silence.

Opinions differ as to the cause of the first sound. These however, may be placed under the following heads :—

(*a.*) Supposed to be due to the noise or *bruit* caused by the sudden and powerful contraction of the muscular structure of the ventricles.

(*b.*) The vibrations of the auriculo-ventricular valves, rendered tense by the backward pressure of the blood.

(*c.*) To the united effect of the above, assisted by other attendant circumstances.

The cause of the second sound is probably due to the sudden tightening of the semilunar valves.

The signs by which disease of the *aortic* and *mitral valves* may be detected, are thus tabulated —Dr Harvey—

Bruit :—If *systolic* and loudest at
Base—Aortic *obstruction.*
Apex—Mitral *insufficiency.*
Bruit :—If *distolic* and loudest at
Base—Aortic *insufficiency.*
Apex—Mitral *obstruction.*

Pulse :—If *regular* Full or strong Jerking, resilient	Aortic disease.
Pulse : If *irregular* Intermittent, unequal Soft, small, weak	Mitral disease.

The mitral valve, when diseased, gives rise to the following phenomena,—a systolic and a diastolic murmur, heard best towards the apex of the heart on the left side. The former or systolic is caused by the regurgitation of the blood from the ventricle into the auricle; the latter or diastolic is due to the impediment to the passage of the blood from the auricle to the ventricle.

Of all the valvular lesions, mitral regurgitant is the most common. It gives rise to cough, dyspnœa, and pulmonary congestion, also to hypertrophy of the left ventricle, and dilatation of the left auricle. The pulse becomes irregular, and unequal in force and fulness.

Disease of the aortic valve is attended with a systolic and a diastolic murmur.

The systolic murmur occurs when the blood is prevented from freely flowing out of the ventricle, and is heard most distinctly at or about the base of the heart; it is generally propagated along the course of the carotids.

The diastolic-aortic or aortic-regurgitant mur-

mur heard at the base of the heart, near the left margin of the sternum, represents insufficiency of the aortic valve, and regurgitation from the aorta into the left ventricle.

Disease of this valve does not produce pulmonary or general systemic congestion, unless associated with hypertrophy of the ventricle, and subsequent disease of the mitral valve.

The pulse is generally abrupt, short, and jerky.

Lesions of the tricuspid valve are rare. Tricuspid regurgitant murmur occurs with the first sound, and is to be distinguished from *mitral regurgitant* by its being heard about the right inferior border of the heart, near the ensiform cartilage.

Pulmonic murmurs due to organic disease are extremely rare; when present, they are to be detected near the left margin of the sternum, in the second intercostal space.

The symptoms which first draw attention to the state of the heart are slowly and increasing dyspnœa and palpitation of the heart, increased on ascending hills or the stairs. The dyspnœa is peculiar, being rather a *breathlessness* than a difficulty of breathing. An œdematous condition of the ankles and eyelids may also be present. The physical signs are a distinct and permanent murmur or *bruit*, modifying one or more of the natural sounds of the heart.

A murmur may be sometimes only functional, no organic lesion being present. This is the case in the anæmic bruit of chlorosis, which is only occasional and temporary, thus differing from the permanent murmur of valvular disease.

The subsequent evils attendant on valvular disease are, congestion of the internal organs, dilatation and hypertrophy of the cavities of the heart, and dropsy more or less diffused.

The prognosis will depend upon the condition of the heart, and the power it may have to carry on the circulation.

The treatment may be considered under two heads: *first*, to avoid excessive action of the heart, and *second*, to treat the complications as they arise.

The first indication is carried out by the avoidance of excessive muscular exertion, and the abuse of alcoholic stimulants, which increase the rapidity of the circulation.

The second indication is best met by the exhibition of digitalis, hydrocyanic acid, belladonna, and such remedies as appear to possess the power of relieving the irregularity of the heart's action without diminishing its power. When dropsy occurs, diuretics, if the kidneys are healthy, and hydragogue cathartics must be employed. The administration of ether, or dry cupping over the region of the heart will often relieve the dyspnœa.

Hypertrophy of the Heart.

Enlargement of the heart may take place without valvular lesion. Hypertrophy may exist without dilatation, and dilatation without hypertrophy.

Hypertrophy is a thickening of the muscles of the heart, occurring chiefly in the ventricles, especially of the left side.

Dilatation is enlargement of the cavities of the heart, and occurs chiefly on the right side.

Hypertrophy *without dilatation* is known as *simple hypertrophy;* when they are combined, *eccentric hypertrophy* or *hypertrophy with dilatation.*

Both of these conditions arise from any cause that disorders or hampers the heart's action, such as valvular disease, aneurism of the aorta, or of one of its first branches, or some functional cause, as long-continued over-exertion.

The symptoms of hypertrophy are, constant excessive palpitation, dyspnœa, a full strong pulse, flushed face, headache, the pain being referred to the top and back of the head, and vertigo. The impulse of the heart is strong and heaving, but the sounds are indistinct, the first being so prolonged as to obscure the second.

Hypertrophy occurs in strong and young subjects.

Dilatation frequently arises from fatty degeneration of the muscular walls of the heart.

The symptoms of dilatation are feebleness of the pulse and coolness of the surface of the body. If the right cavities are greatly dilated, general dropsy may ensue. The action of the heart is weak and undulatory, but the sounds of the heart are loud and noisy.

Dilatation occurs chiefly in the weak and feeble and of the two, hypertrophy and dilatation; the latter is by far the more serious affection.

The treatment will consist chiefly in the application of general principles. When the hypertrophy is conservative, that is when it is due to valvular disease, it does not require treatment. The excessive action of the heart may be moderated by aconite, belladonna, and hydrocyanic acid. Over-exertion should be avoided. In dilatation the treatment is the same, the chief object being directed to improve the tone and vigour of the muscular walls of the heart, and also to support the strength of the patient.

Atrophy of the Heart

may be due to pressure exerted on the walls of the heart by the adhesions that follow pericarditis, or it may occur in connection with many exhausting diseases. The heart may decrease in

weight from the normal standard—ten to twelve ounces in the male, or eight to ten in the female—to four and a half ounces. The heart may become so reduced in size during the course of diabetes as to weigh only five and a half ounces.

Fatty Degeneration of the Heart.

The deposit of fat within the muscular structure of the heart, and the gradual substitution of the former for the latter, constitute the disease known as fatty degeneration of the heart.

Fatty degeneration of the heart may occur singly, but it is generally associated with like conditions in other organs, as the liver and kidneys. A fatty condition of the cornea known as the *arcus senilis* is also often present, but as this state may occur without the heart being affected, it is chiefly important as a diagnostic sign of a constitutional tendency to fatty change, rather than of the disease in any particular organ.

When after death the structure of the heart is cut into, it is found to present a yellowish or fawn colour, the fibrous structure is almost lost, and its place is supplied by granules of fat, which give it a streaky oily appearance. This condition may occur with or without valvular lesion, and may be general or confined to one side of the heart only.

The symptoms are feebleness of the heart's

action, the pulse is often irregular, slow and feeble.

Paroxysms of dyspnœa often occur, accompanied with pain and a sensation of pressure in the region of the heart. Fatty degeneration is rare in males under fifty, and in females under forty.

It should be borne in mind, that it may also occur in lean subjects.

Death may take place suddenly from rupture of the organ, as was the case with the late Dr Abercrombie, or by syncope as in the case of Dr Chalmers. When rupture does take place, it generally occurs in the ventricle, the left more frequently than the right. An over-accumulation of blood in the ventricles, due to deficiency in the contractile power of the organ, is the immediate cause of death in some cases.

The treatment is more hygienic and dietetic than medicinal. All excitement must be avoided when the presence of this condition is suspected. The diet should be nourishing, and consist chiefly of animal food deprived of fat. Tonics and medicines to relieve the urgent symptoms as they arise, will often tend to prolong life in comparative comfort.

Functional Disorders

of the heart, consist in a disturbed action of the organ without any organic lesion.

Severe palpitation occurring on the slightest excitement, or without any assignable cause, and accompanied with intense anxiety on the part of the patient, who lives in daily dread of sudden death, are the characteristic symptoms of these affections.

These disorders of the heart are mainly due to errors in diet, to an anæmic condition of the blood, to the abuse of alcoholic stimulants and tobacco, or to excessive sexual intercourse and self-abuse. Those of a gouty diathesis, are often sufferers to a great extent from palpitation and other functional disorders of the heart.

An enlargement of the thyroid body, and a prominence of the eye-balls, are often associated with functional derangement of the heart. The nature of the pathological connection has not yet been clearly made out.

The treatment consists in relieving the anxiety of the patient as to the severity of the disease, and in a careful removal of the cause.

The following TABLES from Aitkin may be of use :—

FUNCTIONAL DISORDERS OF THE HEART.

PALPITATION DEPENDING UPON ORGANIC DISEASE OF THE HEART.	PALPITATION INDEPENDENT OF ORGANIC DISEASE OF THE HEART.
1. More common in the male than the female.	1. More common in the female than the male
2. Palpitation usually comes on slowly and gradually.	2. Palpitation usually sets in suddenly.

3. Palpitation constant, though more marked at one period than at another.

4. Impulse usually stronger than natural, sometimes remarkably increased, heaving, and prolonged; at others irregular and unequal.

5. Percussion elicits a dull sound over an increased surface, and the degree of dulness is greater than natural.

6. Palpitation often accompanied by the auscultatory signs of diseased valves.

7. Rhythm of the heart regular, irregular, or intermittent, its action not necessarily quickened.

8. Palpitation not much complained of by the patient, occasionally attended by severe pain, extending to the left shoulder and arm.

9. Lips and cheek often livid; countenance congested; anasarca of lower extremities common.

10. Palpitation increased by exercise, by stimulants, by tonics, &c.; relieved by rest, and frequently also by local or general bleeding, and an antiphlogistic regimen.

3. Palpitation not constant, having perfect intermissions.

4. Impulse neither heaving nor prolonged; often abrupt, knocking and circumscribed, and accompanied by a fluttering sensation in the præcordial region or epigastrium.

5. Extent of surface in the region of the heart, which yields naturally a dull sound on percussion, not increased.

6. Auscultatory signs of diseased valves absent; *bruit de soufflet* often present in the large arteries, and a continuous murmur in the veins.

7. Rhythm of heart usually regular, sometimes intermittent; its action generally more rapid than natural.

8. Palpitation often much complained of by the patient; readily induced by mental emotion; and frequently accompanied by pain in the left side.

9. Lips and cheeks never livid; countenance often chlorotic; anasarca absent except in extreme cases.

10. Palpitations increased by sedentary occupations; by local and general bleeding, &c.; relieved by moderate exercise, and by stimulants or tonics, particularly the preparations of iron.

Angina Pectoris

is a disease of advanced life, occurring in paroxysms, attended with intense pain in the region of the heart, the pain extending down the left arm, and often amounting to indescribable anguish. The sufferer clutches at the nearest object for support. The palpitation of the heart is very distressing, accompanied with a feeling of faintness, and a dread of immediate death. The surface is cold and clammy, and great anxiety and suffering is expressed by the countenance of the patient. The attacks become more frequent, and in the course of a few weeks or months, one proves fatal.

The most constant morbid appearances found after death, are ossification of the coronary arteries, fatty degeneration of the heart, and valvular disease. Fortunately it is not a common disease; the author has seen but one case, and that under the care of Dr Warburton Begbie, at the Edinburgh Infirmary.

The treatment is chiefly palliative, and consists in relieving the paroxysms by the administration of alcohol, ether, and other antispasmodics. During the intervals the general health of the patient should be improved; belladonna and the bromide of potash may be given if medicines are employed.

Thoracic Aneurism.

An aneurism may occur in any portion of the thoracic aorta, or in the great vessels within the chest. The usual seat of aortic aneurisms is the ascending portion of the arch outside the pericardium, but sometimes they occur within the pericardium, rupture sooner or later taking place followed by sudden death. The tumours vary in size. The author has a photograph of a poor man, a patient at the Royal Edinburgh Infirmary, who suffered from an aneurismal tumour of the thoracic aorta, so large that absorption of the sternum and upper costal cartilages took place. In the above case two-thirds of the aneurismal tumour were within the chest, the other third projecting externally. The age of the patient was 38. He died of asthenia.

The symptoms will vary with the position and size of the tumours. When small they may not be detected during life. Dyspnœa occurs when the aneurism presses on the bronchi, and the respiratory murmurs are greatly diminished. Auscultation will often detect a purring sound as the blood flows along the contracted artery. Pressure on the œsophagus will be attended with pain and difficulty in swallowing. The general symptoms which follow any obstruction to the circulation will be present, and cause attention to be drawn to the state of the heart and vessels.

The treatment is only palliative. All mental or bodily excitement must be carefully guarded against and enjoined, whilst the general health of the patient is improved.

DISEASES AFFECTING THE DIGESTIVE SYSTEM.

Inflammation of the Mouth

or stomatitis, is a disease of childhood. The following forms will be described.

(*a.*) Simple erythema.

(*b.*) Diphtheria of the mouth.

(*c.*) Follicular stomatitis.

Simple erythema is often due to teething, gastric derangement, or to the mechanical action of hot or irritating substances taken into the mouth. The treatment consists in removing the cause, and by correcting any gastric derangement when present.

Diphtheria of the mouth may occur at any age, but is chiefly a disease of infancy. The mouth becomes covered with a diphtheritic exudation, with here and there small irregular patches, which are renewed as fast as they are thrown off. There is more or less general derangement of the system, and pain is felt on attempting to swallow. Fatal diarrhœa may also occur.

By way of treatment the mouth should be painted over with a solution of the chlorate of potash in glycerine, or a little dry borax may be sprinkled into the mouth. Saline mixtures may be given if necessary.

Follicular stomatitis, aphthæ, or thrush, consists in the presence on the lining membrane of the mouth and the tongue of small round greyish vesicles, which burst and discharge a clear watery fluid. It is most frequently a disease of infancy, but it may occur in adults during the course of other diseases, and is then frequently the forerunner of a fatal issue. The writer has seen cases of an aphthous condition of the mouth, accompanied with a similar condition of the vagina, occurring in adults, and in one case, that of a woman, it was complicated with threatened abortion. Aphthæ, or thrush, is often attended with the production of microscopical fungoid growths.

The treatment consists in the use of mild alteratives and tonics, and washing the mouth out with a solution of the chlorate of potash, or sulphite of soda.

Parotiditis.

Parotiditis, or Mumps, is an inflammatory affection of the parotid gland, probably induced by a specific poison. Enlargement of the glands takes place accompanied with a sensation of tenderness when touched, and pain during mastication. The pain shoots up towards the ear, the lower part of which is pushed outward by the enlargement of the gland. Mumps may be simple or double, that is affecting one side or

both. It is generaly accompanied with catarrhal symptoms, slight fever, and pain in the head, together with loss of appetite and general malaise. Suppuration seldom takes place, and the duration of the attack is short, with no tendency to become chronic. Towards the end of the glandular affection, the testicles sometimes become tender and swollen.

The disease is contagious, and occurs usually but once during life.

The prognosis is favourable.

By way of treatment in most cases the administration of an active purgative in the first instance, followed by a simple saline mixture, and the application of warm anodyne fomentations to the gland will be all that is necessary.

Tonsillitis.

Cynanche tonsillaris. Esquinancie. Angina tonsillaris.

Tonsillitis, inflammation of the tonsils, or quinsy, is an acute inflammatory affection of one or both tonsils, often terminating in suppuration, and the formation of an abscess within the gland, which ultimately bursts, discharging its contents into the mouth.

The relief to the patient when this occurs is intense and immediate.

Slight febrile symptoms, with a sensation of tenderness at the back of the throat, usher in

the attack. Deglutition is performed with difficulty and attended with intense suffering. When both tonsils are affected the patient complains of a sensation of suffocation, he expresses great anxiety as to his condition, and may become delirious.

Tonsillitis may be due to cold or to sudden chills, in some cases the tendency to the disease is hereditary. Every attack renders a future one more probable.

The treatment consists in the local abstraction of blood in the early stage of the disease, by making punctures into the tonsils with a sharp-pointed knife. If the disease is not arrested by this means a brisk purge may be given, and anodyne poultices applied externally. The inhalation of steam often affords great relief, and helps to increase the rapidity of the suppurative process, the formation of an abscess, and its ultimate rupture and discharge of its contents.

By way of prophylaxis all muffling up of the throat must be avoided, and the neck and chest sponged daily with cold water.

Diseases of the Œsophagus.

Affections of the œsophagus are generally due to attempts to swallow hot or corrosive fluids. It may, however, be the seat of cancer, of inflammation not due to the action of irritants, and of stricture, the last in most cases being an after effect of inflammation. The œsophagus is also

liable to stricture, due to spasm without any organic change in its walls. Whatever may be the cause or the nature of the disease, there is one well-marked symptom always present—dysphagia, or a difficulty in swallowing.

The treatment will depend upon the nature of the affection; if inflammatory, soothing bland drinks are indicated, together with nourishment in a fluid condition.

The treatment of the stricture will depend on its nature; if the product of inflammation, and lymph be deposited, an attempt may be made to promote absorption of the inflammatory products by daily passing a bougie down to and through the stricture, and using a bougie a size larger each time. If due to spasm, tonics and antispasmodics will be required. In the case of cancer there is no treatment beyond relieving the patient's suffering.

Dyspepsia.

Dyspepsia may be divided into acute and chronic.

Acute dyspepsia, called by the French *embarras gastrique*, and sometimes described as a *bilious attack*, arises from the ingestion of some very indigestible food, or from the sudden arrest of the functions of the stomach by strong mental emotions, or violent exercise after a full meal. There is a sense of weight and oppression at the epi-

gastrium; nausea and perhaps vomiting may take place. When vomiting occurs naturally, the patient soon expresses himself relieved. Oppressive frontal headache is also present. The tongue is furred, a bitter taste is experienced in the mouth, and sooner or later diarrhœa occurs, accompanied with pain in the bowels. After the acute symptoms have subsided, there is generally some loss of appetite, and want of tone of the system generally. The treatment consists in the administration of an emetic or a brisk purgative in the first stage, followed by tonics and medicines to relieve the gastric derangement and aid digestion.

Chronic dyspepsia.—The symptoms of chronic dyspepsia are either local, that is, referable to the stomach or intestines, or general, that is, sympathetic or attendant. Digestion is of two kinds, *gastric* and *intestinal*, the former takes place in the stomach, and requires from two to four hours for its completion, the latter is a continuation of the former in the small intestines, when the food is acted upon by the bile, and by the pancreatic and intestinal secretions. The causes of indigestion are over feeding, imperfect mastication, want of exercise, or excessive exertion indulged in too soon after a full meal. The inordinate use of tobacco or spirits, and all irregularities which tend to impair the digestive functions. For the sake of simplicity we may treat of chronic dyspepsia under five heads.

1. *Gastrodynia*, a severe pain or cramp in the stomach and chest, coming on after taking any food, either of the smallest quantity or of the simplest kind.

2. *Cardialgia*, or heart-burn, due to an excessive formation of acid in the stomach, accompanied with a sensation of scalding extending into the throat.

3. *Sympathetic palpitation of the heart*, attended with much mental distress, and dread of heart disease.

4. *Pyrosis*, or water-brash, characterised by the frequent eructation of a clear fluid from the stomach into the mouth, sometimes acid, but at others alkaline or neutral.

5. *Dyspepsia, due to the presence of sarcinæ ventriculi* in the stomach, which gives rise to frequent nausea and vomiting of frothy sour-smelling fluid, in which the microscope detects the vegetable growth.

In any of the forms of dyspepsia which occur in practice, the most distressing symptoms with which the physician has to deal are those to which the terms mental or nervous have been given.

The indications for the treatment of dyspepsia are threefold.

1. The dietetic.
2. The mental or moral.
3. The medicinal.

Dietetic. Many cases of dyspepsia may be cured

by simple attention to the diet alone. No rule can be given that is applicable to all; the patient in most cases knows best what agrees or what does not agree with him.

The mental or moral treatment of dyspepsia consists in establishing confidence in the patient, by a careful hearing and attention to the history of the case. Dyspeptics are generally "long winded" in the enumeration of their symptoms, and are very tenacious of any inattention on the part of the physician.

Medicinal.—In Gastrodynia the treatment will consist in the application of a mustard plaster to the pit of the stomach, and the administration of small doses of nitrate of silver, care being taken that the remedy is not continued long enough to cause a blue coloration of the skin. When cardialgia or heart-burn is a prominent symptom, the administration of alkalies is indicated, the best being the nitrate or trisnitrate of bismuth, or the bicarbonates of potash and soda. Hydrocyanic acid will often give relief when there is much palpitation of the heart. The pyrosis will also be benefited by the treatment recommended for heart-burn. The nausea and sickness, so often a distressing symptom in dyspepsia, will be best treated with small doses of morphia, creosote and hydrocyanic acid. When vomiting is due to the presence of the *sarcinæ ventriculi*, the stomach should first be emptied with the aid of the stomach pump, and then fol-

lowed by the exhibition of the mineral acids in bitter infusions. The sulphites of potash and soda, as recommended by Dr Jenner, have also been found useful. The compound rhubarb pill, given as a dinner pill an hour before dinner, will frequently aid digestion and prevent any unpleasant symptoms arising.

Gastritis.

Inflammation of the stomach, as an acute affection of that organ, is a very rare disease. When it does occur, it is generally due to the action of irritant poisons, swallowed accidentally or given with criminal intent. Should the disease, however, be met with, and have proved rapidly fatal, the mucous membrane of the stomach will be found inflamed, the redness more or less arborescent, in some places punctiform. If the fatal termination be delayed, besides the redness, the mucous membrane will be found more or less softened, and covered with mucus.

The symptoms are intense burning pain at the epigastrium. During inspiration the pressure of the diaphragm on the stomach increases the pain. Nausea and vomiting are always present, the vomited matter being mucus tinged with bile. Thirst is sometimes present, and the desire for cold water is urgent, though in many cases it increases the vomiting. Should acute gastritis terminate fatally, the end is generally marked by the regurgitation rather than vomiting of thick grumous coffee-

ground matter, by hiccough, great prostration, coldness of the surface, and feebleness of the pulse.

The cause of acute gastritis, excluding the irritant poisons, has not yet been clearly made out.

The symptoms are so well marked that there can be little danger of an error in diagnosis. It was formerly however confounded with gastralgia. The paroxysmal character of the latter disease, the absence of pain on pressure, and the relief often felt after partaking of food will help to distinguish the two diseases.

The indications for treatment are to subdue the inflammatory action, and to give the stomach a rest. The vomiting may be relieved by small doses of morphia, or ice may be sucked by the patient. Milk, barley water, gum water or rice water may be given. Injections of strong beef tea, and alcohol, when necessary, should be given. By this means rest will be obtained for the stomach, and the strength of the patient sustained.

Chronic Gastritis

is by no means an infrequent complaint. The symptoms which point to this condition of the stomach are chiefly those which accompany some of the forms of dyspepsia. Constant tenderness over the pit of the stomach, loss of appetite, and loss of weight due to the mal-assimilation of food, from imperfect digestion. Nausea and vomiting are among the most important signs of this disease. Among the causes of chronic gastritis when

not following an acute attack, are, the too frequent use of powerful stimulants, the absorption of arsenic into the system, and starvation.

The treatment is chiefly dietetic. Milk, light boiled eggs, gum water, and other mucilaginous drinks should be given. Blisters over the region of the stomach will be found of use. Bismuth, hyoscyamus, hydrocyanic acid, the bicarbonates of potash and soda, and gentian are the remedies on which the most reliance is to be placed.

Gastric Ulcer.

Ulcer of the stomach is not an uncommon disease. Ulceration may occur during an attack of acute gastritis. Gastric ulcer, however, often occurs without any previous inflammatory action beyond that which surrounds the ulcer. The ulcers are more or less round or oval, and vary in size from that of a pin's head to that of a sixpenny piece. They are generally found on the posterior surface of the stomach, close to the pyloric opening. The tendency of the ulcer is to perforate the walls of the stomach, and so give rise to fatal peritonitis. This dangerous complication is often obviated by the gluing together—by the process known as adhesive inflammation—of the stomach to the liver, pancreas, or to some other part at the seat of the ulcer, thus preventing the escape of the contents of the stomach into the peritonial cavity.

The most prominent diagnostic symptoms are,

pain felt immediately after anything has been taken into the stomach, tenderness or pressure over the epigastrium, vomiting and discharge of blood from the stomach. The pain, which is of a burning character, differs from that which accompanies dyspepsia, in being contemporaneous with the ingestion of food. Pain due to dyspepsia generally follows an hour or two after a meal.

The vomited blood is dark and grumous, due to the action of the gastric juice. The bowels are usually confined, and the motions contain more or less dark blood mixed with them.

The exact cause or causes of ulcer of the stomach have not been clearly made out. Females are more liable than males; the feeble and the emaciated than the robust. It may prove fatal by rupture, escape of the contents of the stomach, followed by peritonitis, by hæmorrhage, and by inanition.

To arrest the vomiting, to relieve the pain, to check the hæmorrhage, and to assist in the cicatrization of the ulcers, are the indications for treatment. The diet must be nutritious, easily digested, and of a bland, soothing character. Milk and bread sopped in it, and light-boiled eggs will form important articles of diet. If possible, the complete rest of the stomach should be insured by the use of injections. Ice must be given when the hæmorrhage threatens to be severe. As far as medicines are required, opium will be found invaluable in diminishing the

peristaltic action of the stomach, and thus aiding the cicatrization of the ulcers. Bismuth will be found of service, and will often arrest the vomiting.

Dyspepsia.	Gastric Ulcer.
Pain felt some hours after ingestion of food. Hæmatemesis seldom present.	Pain felt immediately on the entry of food into the stomach. Hæmatemesis not infrequent.

Cancer of the Stomach.

Carcinoma is not, fortunately, so common as the last-mentioned disease. The pyloric end of the stomach is the part most frequently affected. Scirrhus is more often met with than the other kinds of cancer. Perforation, occlusion of the openings of the stomach, hæmorrhage from rupture of an artery, and dilatation or contraction of the stomach, are among the principal effects produced by cancer in this organ. Death occurs generally from inanition. Pain of a lancinating character, constant vomiting, loss of appetite, discharge of blood from the stomach, together with the peculiar cancerous cachexia, and the presence of a tumour in the epigastric region, will assist in forming a diagnosis.

The treatment is only palliative.

Enteritis

is acute inflammation of the mucous membrane of the small intestines. The inflammatory action

is generally limited in extent. The anatomical characteristics of this disease are those which belong to inflammation of other mucous membranes. The symptoms of acute enteritis are abdominal pain, referred to the parts surrounding the umbilicus, tenderness over the abdomen on pressure, nausea, vomiting, and diarrhœa. The patient usually lies on his back, with his knees drawn up to his stomach, in order to relax the muscles of the abdomen. The stools are watery, and often contain large quantities of mucus. The disease is usually a slight affection, very rare during adult life, but a common complaint with infants.

Enteritis must be distinguished from colic, peritonitis, dysentery, gastritis, typhoid fever, and hernia. The pain in colic is relieved by pressure. There is an absence of inflammatory symptoms, and constipation rather than diarrhœa is present. The diagnosis from peritonitis is more difficult; diarrhœa is less frequently a concomitant of peritonitis than it is of enteritis; rigidity of the abdominal muscles is absent in the latter, and the general symptoms are more aggravated in the former than in the latter. From acute gastritis in this, that the pain in gastritis is referred directly to the region of the stomach. From dysentery by the absence of the characteristic dysenteric stools, of pain in the situation of the colon and tenesmus. From typhoid fever, by the absence of the typical

symptoms of that fever and the rose eruption. To avoid mistaking enteritis for hernia, the usual seats of rupture should be examined. It should be borne in mind, however, that enteritis may end in mortification of the intestine; this condition is marked by the absence of pain while the signs of depression continue, or become even more urgent. The pulse becomes intermittent, the countenance cadaverous, the skin bathed in a cold sweat; there is distressing hiccough, and the patient dies by slow asthenia.

The treatment consists in the administration of purgative enemata and the free use of opium. Hot fomentations or poultices over the abdomen will give great relief. The diet should be simple, and of a bland, soothing nature, composed chiefly of milk. When necessary, stimulants must be given.

Inflammation of the Cæcum,

known also as *typhlitis*, *typhlo-enteritis*, or *cæcitis*, may be due to an accumulation of fæces, to the lodging of extraneous substances in the colon or its appendix, which give rise to inflammatory action, attended with pain in right iliac fossa, symptomatic fever, and in severe cases, perforation of the intestine or abscess. The abscess may burst externally, giving rise to a fistulous opening, through which the contents of the bowel are discharged. Perforation of the *appendix vermiformis*, may occur independently of cæcitis. More or

less peritonitis accompanies typhlitis. The application of anodyne fomentations to the part affected, the administration of opium to relieve pain, and the use of enemas with castor oil is the treatment to be adopted. Active cathartics are worse than useless; they are dangerous. The vomiting which often accompanies this affection is best treated by ice or effervescing drinks.

Dysentery.

Dysentery is inflammation and ulceration of the mucous membrane of the large intestine, most prevalent in hot climates, and often occurring as an epidemic. It is supposed by some to be due to exposure to sudden and great variations of temperature, especially when the system is weakened by fatigue, irregular living, combined with insufficient clothing and lodging. It has been the scourge of armies.

Dysentery generally begins as a simple diarrhœa. The important symptom of this disease, is tenesmus, or the constant desire to go to stool, accompanied with great straining and pain, but inability to evacuate the bowel, nothing being passed but mucus, blood, and shreds of fibrine, which the patient believes to be the coats of his own bowels. Small hardened lumps of fæces called *scybala* are sometimes expelled. The excessive straining at stool often gives rise to prolapsus of the rectum. The griping or colic

pains which accompany an attack of dysentery are called *tormina*. In hot climates it is a very acute disease, attended with considerable febrile movement and intense pain around the umbilicus, as well as in the course of the rectum.

Dysentery has a considerable tendency to become chronic, and at the best of times it is a difficult disease to remove.

The prognosis in sporadic dysentery occurring in a temperate climate is favourable, but in hot countries it is a grave disease, and any opinion should be given cautiously.

Treatment.—Divers modes of treatment have been recommended for the cure of dysentery. Purgatives, calomel, castor oil and many others have had their votaries. The injection of castor oil and opium has often effected a cure. The plan now generally adopted in India consists in the exhibition of large doses of ipecacuanha.

The mode of administration is generally as follows, half a drachm of the tincture of opium is given, followed in about an hour's time by twenty or thirty grains of powdered ipecacuanha in a little syrup. The patient is kept perfectly quiet, and he is not allowed to take any fluid. In four or five hours the dose may be repeated. Nausea and vomiting rarely occur when drink is prohibited.

Diarrhœa.

Diarrhœa, or looseness of the bowels, is rather

a consequence of certain pathological conditions than a disease in itself. It is characterised by the alvine evacuations being more frequent and more copious than in health.

An attack of diarrhœa may be due to indigestible food, to cold or damp, to great mental emotion, or to the exhalations of decaying animal or vegetable substances. A fertile source of this affection is the emanations from foul drains, or the use of bad drinking water.

The symptoms which attend an attack of diarrhœa are, griping pains in the abdomen, constant desire to go to stool, which is most frequently followed by a sensation of relief. Not infrequently during the discharge, there is a disagreeable sinking sensation in the abdomen. Faintness also is not uncommon. The skin is cool, the pulse feeble and irregular.

It should be borne in mind that diarrhœa often occurs in wasting diseases, as in the *colliquative diarrhœa* of pulmonary tuberculosis, and also in some fevers, as typhoid, &c.

The treatment will depend greatly on the cause of the attack. If due to over-eating—*diarrhœa crapulosa* of the old writers—a dose of tincture of rhubarb or the compound rhubarb powder, or of castor oil, will best meet the requirements of the case. Pain, when present, may be relieved by opium. Astringents, sulphuric acid, catechu, kino, and many others are indicated, when the evacuations continue frequent, and the weak condition

of the patient demands the speedy arrest of the discharges.

Colic.

An attack of colic generally accompanies or follows a fit of indigestion. It is characterised by paroxysms of severe twisting pain in the abdomen, usually felt round the umbilicus. The pain is relieved by pressure, so that the patient is in most cases found lying on his belly, or pressing his hands on his abdomen. Not infrequently the desire to go to stool is urgent, but nothing passes but wind. The pulse is unaffected unless the pain is very severe and has continued for some time, when it may become so from the anxiety of the patient. The cause of colic is frequently attributable to the local action of indigestible food, which gives rise to the painful spasm that is the characteristic symptom of this disease.

It differs from dysentery by the absence of the characteristic dysenteric stools ; from enteritis and peritonitis by the absence of inflammatory symptoms, and by the fact that the pain is relieved by pressure. The treatment usually adopted is to give an aperient and opiate at the same time. A dose of the tincture of rhubarb, together with chloric ether, aromatic spirits of ammonia and the tincture of opium will often give almost immediate relief. If colic follows a full meal, an emetic may be given with advantage. Injections of gruel containing half a drachm to a

drachm of the tincture of opium, and the same quantity of the tincture of assafœtida, may be given.

Lead Colic.

Painters' colic (*colica pictonum*), is a disease due to lead poisoning.

An attack of painters' colic comes on slowly; there is an anæmic condition of the blood, a fetid odour of the breath, and metallic taste in the mouth. The appetite is considerably impaired or entirely lost, the bowels are constipated, and pain is felt in all the limbs. More or less emaciation and muscular debility are also present. Pain like that which attends common colic, is felt in the abdomen, chiefly about the umbilicus; at first it is slight, but it soon becomes severe. There is always more or less flatulence. The presence of a blue line along the gums, close to the teeth, is a diagnostic symptom. A peculiar paralytic affection of some of the voluntary muscles—principally those of the fore-arm—is often present, and is commonly known as "dropt hand."

The lead may find its way into the system through the lungs, skin, and stomach. The treatment is palliative and curative. Anodynes to relieve the pain are indicated. The administration of sulphuric acid has been recommended by Gendrin, and its value confirmed by Dr Bennett. Sulphuric acid diluted with water and sweetened with the syrup of lemons has been

used with considerable success as a prophylactic. Sulphur baths are also useful to remove the lead from the skin. The iodide of potash in gradually increasing doses has been tried, and has met with many advocates for its use. Purgatives are sometimes necessary, and may help to remove the lead from the alimentary canal.

Constipation

is a functional affection of the large intestine, attended with insufficiency of the evacuations from the bowels. The term *costiveness* has also been applied to this condition. Constipation is likewise incidental to most affections.

Constipation may give rise to pains in the head, accompanied with a sensation of weight or pressure on the head. Pain, with distension of the bowels, is not infrequent. Pain and straining accompanying the act of defecation are often present, and may become very distressing. The presence of hæmorrhoids have been attributed to this condition of the bowels.

During health it would appear that one free daily evacuation is necessary, but this though the rule, is not without many exceptions, and yet the health remains unimpaired.

The causes of costiveness are neglect or disregard to the requirements of nature; by this means, the gut becomes abnormally distended, and its contractile power considerably impaired.

The treatment will be partly dietetic and

partly medicinal. The dietetic will embrace the use of vegetables, bran bread, figs, prunes, tamarinds, &c., &c.

When medicines are used, aloes combined with some tonic, such as the extract of nux vomica, or small doses of strychnine combined with the purgative should be given. Preparations of iron are useful when added to a purgative. Aperient medicines should not be too long continued, and they should be dispensed with as soon as an habitual action of the bowels has been procured.

Obstruction of the Bowels.

Obstruction of the bowels may be due to a variety of causes; the following table, copied from Dr Tanner's Practice of Medicine, will assist in clearly understanding them.

1. *Intermural*, or those originating in, and implicating the mucous and muscular coats of the intestinal walls:—

(*a.*) Cancerous stricture.

(*b.*) Non-cancerous stricture, comprising — 1. Contraction of cicatrices following ulcerations. 2. Contractions of walls of intestine from inflammation, non-cancerous deposit and injury.

(*c.*) Intussusception.

(*d.*) Intussusception associated with polypi.

2. *Extramural*, or those causes acting from without, or affecting the serous covering:—

(*a.*) Bands and adhesions from effusion of lymph.

(*b.*) Twists or displacements.
(*c.*) Diverticula.
(*d.*) External tumours or abscesses.
(*e.*) Mesocolic and mesenteric hernia.
(*f.*) Diaphragmatic hernia.
(*g.*) Omental hernia.
(*h.*) Obturator hernia.

3. *Intramural*, or obstructions produced by the lodgment of foreign substances :—

(*a.*) Foreign bodies, hardened fæces, concretions having for their nuclei gall-stones, &c.

The symptoms of obstruction of the bowel, are pain more or less localised. Vomiting occurs sooner or later, and is a prominent or persisting symptom. The vomited matter is at first mucus tinged with bile, but it may become stercoraceous or fæcal if the obstruction be not soon removed. The pulse becomes quickened, the countenance anxious, and the body bathed in profuse perspiration. Should the obstruction yield to treatment, free and copious evacuations mark the return of the gut to its place, and the freedom of the patient from immediate danger. The prognosis is always unfavourable. Sometimes a cure may be effected by the sloughing away of the invaginated portion of the gut, and by its being passed by the rectum. The process by which it is detached gives rise to adhesive inflammation, thus gluing the separated edges together, and so preserving the continuity of the bowel. The treatment should consist in the administration of opium to lessen the peris-

taltic action of the intestine and relieve spasm. Cathartics are at all times contra-indicated.

Nourishment in a concentrated form should be given, and the patient's strength carefully sustained. The inflation of the intestines has been recommended by Dr Tanner, when the invagination occurs below the ileo-cæcal valve. Peritonitis may occur from the imperfect union of the gut where the process of sloughing has taken place, thus allowing the escape of its contents into the peritoneal cavity.

Intestinal Worms.

The intestinal worms are divided into three kinds, Ascarides, Lumbrici, and Tænia. A fourth, the *tricocephalus dispar*, though not infrequently met with, is not sufficiently important to need special notice.

Ascarides, also *oxyuris vermicularis*, or thread, pin, or seat worms, are very small, usually not more than a third or half-an-inch in length, and inhabiting the large, but rarely entering the small intestine. They exist in large numbers, and generally occur in children, in whom they give rise to intolerable itching about the anus.

They are best got rid of by the use of injections of salt and water, or a turpentine enema, or infusion of quassia.

Lumbrici, or round worms attain a length of from four to six inches or more. They are of a whitish or pale straw colour, their bodies are round and

taper towards each extremity. They are not unlike the common gardenworm, but are finer in texture and not ringed. Children are more subject to them than adults, but they are by no means uncommon in the latter. The small intestines are their usual habitat; they however, occasionally make their way into the stomach, and are then presently vomited. They seldom exist singly, but are often present in considerable numbers.

The symptoms which indicate their presence are, irregularity of the appetite, which is often voracious, the breath is offensive, and the complexion assumes a muddy hue. The teeth are frequently ground together during sleep, which is always more or less disturbed. The belly becomes swollen, tense and hot, the stools are unhealthy, consisting chiefly of mucus. The attention may be first drawn to them by their presence alive in the evacuations.

The treatment consists in the administration of a brisk purgative—calomel or scammony—followed by small doses of the tincture of steel, or some other tonic. Scammony is perhaps the best purgative, as it not only clears away the worms, but also the unhealthy mucus which surrounds them, and in which their ova is lodged. As they occur mostly in ill-fed and ill-nourished children, a nourishing diet is required, together with the proper measures to improve the general health of the patient.

Tænia.—There are two species of astoid worms

which inhabit the human intestines,—the *tænia solium*, and the *bothriocephalus latus*. The *tænia solium* is the ordinary tape worm met with in this country; the latter—*bothriocephalus latus*—is generally found in Holland, Russia, Poland, and Switzerland.

The tape worm is composed of oblong, flattened segments, each exactly resembling the other. Each segment contains both male and female sexual organs, the segment in time being thrown off to deposit its ova. The tape worm may grow to many yards in length. The presence of the worm is generally known by the appearance of the cast-off segments in the stools, attended by considerable constitutional derangement.

The most successful mode of treatment is that suggested by Sir Robert Christison, and which the writer has adopted with considerable success.

A dose of castor oil should be given early in the morning, and repeated at night if necessary. During the day the patient should be limited to slops, no solid food being taken, on the following morning a full dose of the oil of male fern, mixed in a little honey or syrup is given, and the castor oil repeated in the evening. The object of this line of treatment is to clear out the intestine, and expose the worm to the full influence of the poison. Other anthelmintics used in the treatment of the tape worm are, kusso, the dried flowers of the *brayera anthelmintica*, the bark of

the root of the pomegranate, kamela consisting in the hair from the capsules of Rottlera tinctoria, and many others.

Trichiniasis.

Trichiniasis, or trichinatous disease, is an affection attended with debility, fever, tenderness over the abdomen, insomnolency, œdema of the legs, and intense pain in the muscles, due to the presence of a small encysted *entozoon*, the *trichina spiralis* of Owen, imbedded in the muscles. The disease has made its appearance in several countries, but it was in Germany where it first attracted attention, and was there attributed to the use of pork in which the disease was present.

The treatment is more preventive than curative.

The prevention of the disease consists in total abstinence from uncooked pork. Smoking, pickling, or salting cannot be relied on, as no temperature below 192° F. appears to be effectual in the destruction of the trichina spiralis. Prof. Mosler, of Berlin recommends the internal administration of benzine suspended in syrup or mucilage, as a means of cure. Cathartics should be given in the first instance in order to expel, if possible, the worms from the alimentary canal.

DISEASES OF THE ABDOMEN.

Peritonitis

is acute inflammation of the peritoneum, or serous membrane which lines the inner surface of the abdominal walls, and by which the intestines and organs of the abdomen are surrounded. It may arise from external injury, from the effects of cold, or the extension of diseased action from neighbouring structures, or lastly it may be the sequel to severe and complicated parturition. The commencement of the disease is often marked by successive chills or rigors accompanied with intense pain, generally starting from one point and rapidly spreading over the entire abdomen, which becomes swollen, hot and tense, and excessively tender to the slightest touch. The patient lies on his back with his knees drawn up, in order both to relax the abdominal muscles and support the weight of the bed-clothes. The countenance wears an anxious expression, the breathing is short, quick, and thoracic, being performed chiefly by the intercostal muscles. Nausea and vomiting are continually present, consisting of the ejection of bilious fluid. The bowels are confined, and the urine may be retained or suppressed. The pulse is small and very quick, sometimes as frequent as 120 beats a minute, and the tongue is white and creamy. The attack runs a rapid course and may prove fatal by

asthenia in two or three days, sometimes in twenty-four hours. The morbid appearances found after death in a person dead with peritonitis, are preternatural vascularity of the bowels, especially the small intestines, which are also distended with gas and fluid. The peritoneum and the convolutions of the intestines are all glued together by the effusion of plastic lymph, which always occurs when serous membranes are the subjects of inflammation.

The treatment now usually adopted is to give opium in a large dose at first, and then to continue its action by repeated small doses given at short intervals. Hot linseed meal or bran poultices should be applied over the entire surface of the abdomen. Flannels rung out in hot water, then sprinkled with turpentine and applied to the abdomen, will often afford intense relief. A saline diaphoretic draught may be given and repeated every four hours. Calomel in small doses, is sometimes given in combination with the opium. Aperients should be avoided, but the use of soothing enemas will often be of great service. The object in view is to give the bowels complete rest if possible.

Chronic Peritonitis

may be the sequel to the acute attack, but is more frequently a scrofulous disease, attended with a deposit of tubercles in and under the peritoneum. It generally occurs in young adults of

cachectic appearance. The symptoms are somewhat obscure. Occasional pain and tenderness of the bowels, are not infrequent. The abdomen gradually enlarges and acquires a peculiar irregular and knotted feel. The patient gradually emaciates, and finally becomes hectic, and dies after perhaps some years of suffering. The morbid appearances which are found after death are, the presence of old adhesions, the bowels are glued together, the liver being covered by a thick false membrane, and tubercles are found scattered about through the abdomen.

The treatment must be regulated by the symptoms and condition of the patient. The exhibition of the iodide of iron or the iodide of potash and cod liver oil is advisable. Change of air often aids the other measures of treatment. Poultices or blisters to the abdomen will often be necessary.

Ascites.

The terms *ascites*, *hydro-peritoneum* or *peritoneal dropsy*, are applied to effusion of fluid into the peritoneum, whether the result of inflammation or not. The presence of lymph is characteristic of an effusion due to inflammation, its absence therefore marks the true non-inflammatory origin of ascites. Dropsy is not a disease in itself, but is rather the effect or symptom of disease.

Ascites is generally due to disease of the liver

—cirrhosis, cancer, or obliteration of the portal vein—to disease of the heart or kidneys, and extreme debility.

Symptoms.—As a rule the accumulation of the fluid takes place without pain or any local symptom. The upper part of the body may be more or less emaciated, or looks more so from the enormous size of the abdomen. The abdomen is greatly distended, and frequently presents a marbled or mottled appearance due to enlarged veins, which ramify on the surface. Anasarca of the lower extremities is often present. The scrotum and penis are also frequently œdematous. The mechanical pressure of the fluid gives rise to a feeling of oppression, and in some cases there is inability to lie on the back. The functions of the abdominal organs are more or less impaired, and very frequently they suffer considerable displacement. Care must be taken to avoid the error of mistaking ascites for an enlarged bladder; the introduction of a catheter will at once decide the nature of the case. Pregnancy and great corpulence have also at times been mistaken for dropsy. Ovarian dropsy must also be separated from ascites.

ASCITES.	OVARIAN DROPSY.
The abdomen is *equally* enlarged and fluctuating. In ascites, the bowels float up through the fluid, in whatever position the patient may be placed. If the pa-	The ovarian tumour is more on one side than on the other, and fluctuates less distinctly, being generally composed of one or mor cysts. In ovarian dropsy

tient be lying on his back, a clear sound is elicited by percussion over the anterior surface of the abdomen. By changing the position of the patient and noticing the sound elicited on percussion, the diagnosis will be assisted. the tumour occupies the anterior portion of the abdomen, the intestines being behind and on both sides of the tumour.

A dull sound is heard anteriorly on percussion when the patient is in a supine position.

The urine, often small in quantity, contains bile when the dropsy is due to disease of the liver; albumen, when renal disease is present.

The treatment will consist in the use of drastic purgatives and diuretics.

In dropsy due to disease of the heart and the liver, purgatives and diuretics may be employed, but in renal dropsy, cathartics, combined with preparations of iron, should only be used. When these means fail, recourse must be had to *tapping*.

DISEASES OF THE LIVER.

The diseases of the organ now about to be described are, acute inflammation of the peritoneal covering, ending in adhesions, acute hepatitis of the structure, terminating in resolution or abscess; abscess, or purulent deposit due to pyæmia; cirrhosis, or hobnail liver; nutmeg liver; fatty degeneration of the liver; hydatid disease; maglignant disease; congestion due to valvular disease of the heart, to hot climates, or intermittent fever; functional disorders, either from excessive or deficient secretion of the bile.

Acute Hepatitis.

For the sake of convenience, under the above head will be considered, inflammation of the peritoneal covering, and of the gland itself. Acute hepatitis is in most cases ushered in by well-marked rigors, or chills. Fever follows, accompanied with more or less pain in the region of the liver. When the inflammation is limited to the peritoneal covering, the pain is of a lancinating or stabbing character, increased when the patient attempts to move in bed. Pain shooting into the right shoulder may, or may not be present. The appetite is lost, the tongue is coated with a yellowish white fur, nausea and vomiting

are present in the majority of cases. Jaundice may be present, but is not a constant symptom. The urine is often albuminous, and when jaundice is present, contains bile. Headache is in most cases a distressing symptom. Drowsiness and delirium generally usher in a fatal termination. As in other cases where inflammation attacks a glandular organ, engorgement and exudation are the primary effects, the latter, if resolution takes place, is absorbed ; if not, an abscess is in most cases the result.

Inflammation of the liver most frequently occurs in hot climates, and seldom attacks persons under the age of twenty. It may be due to the abuse of alcohol, to exposure to cold, or it may follow, or accompany other diseases, as dysentery, pneumonia, &c. ; hepatitis must be distinguished from pleurisy, pneumonia, and intercostal neuralgia, by a careful attention to the symptoms. Acute inflammation of the liver is in most cases attended with considerable danger, especially if an abscess be formed. The treatment will depend upon the condition of the patient, and the severity of the inflammatory action. Bleeding, general or local, may be called for. The application of hot poultices of mustard or linseed may be found useful. Opium to relieve pain is often necessary. For the rest, the physician must be guided by general principles.

Abscess of the Liver.

Abscess of the liver, due to pyæmia, differs somewhat from an abscess the result of inflammation of the parenchyma of the organ. In the former case, two or more abscesses of small size are found, whereas in the latter case the abscess is large, sometimes containing a considerable quantity of pus.

The clinical history of pyæmic hepatic abscess is very obscure, nor can the diagnosis be made with any certainty.

By some it is supposed that the frequency of abscess of the liver in India is due to its being a sequel of dysentery, and consequent on the ulceration of the large intestine inflaming, or even opening, the mesenteric veins which form the roots of the portal vein.

Apart from the above, if in the course of an attack of acute hepatitis the patient be suddenly seized with severe rigors, followed by hectic or suppurative fever, the formation of an abscess may be inferred. Hepatic abscess may open externally through the abdominal walls if the liver become glued by adhesions to the inner surface of the muscles. More frequently, however, the abscess opens into the duodenum, stomach, or colon, but seldom into the peritoneal cavity, because serous membranes are prone to adhesion and the liver becomes connected to the nearest intestine by organised lymph, and as the

mucous membrane that lines the hollow viscera is prone to ulceration, a communication is formed and the contents of the abscess are discharged into the bowel. The liver may also become adherent to the under surface of the diaphragm, the upper surface of this to the lung, and so the abscess progresses in that direction until it opens into a bronchial tube, when the contents are expectorated by the patient, mixed with bile.

The prognosis is even in the most favourable cases, unfavourable.

The treatment will consist in supporting the strength of the patient, and by opening the abscess should it point through the abdominal walls; and a reasonable time be allowed for the formation of adhesions between the muscles and the liver, in order, if possible, to prevent the discharge of pus into the peritoneal cavity.

Cirrhosis of the Liver.

To chronic diffuse inflammation of the liver, attended with an increase of the interlobular connecting tissue of the substance of the liver, the terms *cirrhosis*, *hobnailed* or *gin-drinker's liver*, have been given. In the first stage of the disease the size of the liver is not much affected, but as the disease progresses it becomes smaller, with a marked diminution in the weight. The capsule becomes more or less opaque, of a grey-whitish colour, and covered by flattened projections vary-

ing in size from that of a pin's head to that of a pea. When cut into, a like appearance is observed in the interior. The decrease in size, and atrophy of the organ, is due to the pressure excited by an abnormal amount of fibrous tissue between the hepatic lobes, and which also, compressing the terminal branches of the portal vein, gives rise to hepatic congestion, and dropsy ensues. The gall ducts become compressed, giving rise to biliary congestion and a yellow coloration of the organ. By some, cirrhosis of the liver is regarded as a diffused, sub-acute inflammation of the areolar or connective tissue existing between the lobules, forming an extension of Glisson's capsule. By others, the change is considered to take place first in the hepatic cells. In accordance with this doctrine, the change in the structure of the liver is not due to inflammation, but to a process of degeneration having its origin in the secreting cells of the liver. Disease of the heart, spleen, and kidneys often co-exist with cirrhosis.

Till the appearance of ascites, there is little or nothing to direct the attention to the conditioning the liver; the symptoms that are present be of referable to the habit of spirit-drinking, which, in the great majority of cases, is the cause of this disease. There is no known cure for this lesion, a fatal termination generally ensuing in a few weeks or months after the appearance of the

dropsy. To relieve, therefore, the sufferings of the patient is all that can be done.

TABLE SHOWING POINTS OF DIFFERENCE BETWEEN CIRRHOSIS AND SYPHILITIC CIRRHOSIS.

CIRRHOSIS.	SYPHILITIC CIRRHOSIS
Chronic diffuse inflammation of the liver, with hypertrophy and subsequent shrinking of the areolar tissue within, and covering the structure of the gland. The liver becomes firm and then contracted, the capsule being so puckered in as to give a "hob-nailed" appearance. The change is said by some to take place first in the hepatic cells, by others in the areolar connective tissue existing between the lobules, and forming an extension of Glisson's capsule. The colour of the liver when thus affected is that of impure bees' wax. This affection is known as *Gin-drinker's liver*.	is generally a simple induration of the gland, without the formation of the characteristic nodules of cirrhosis. A second variety—*hepatitis gummosa*—consists in the presence of whitish depressions, like cicatrices, extending into the gland, and filled with opaque yellowish nodules more or less rounded and varying in size from that of a linseed to a walnut. There is generally the history of tertiary syphilis.

Fatty Liver.

The liver during health contains more or less fat, it is therefore somewhat difficult to decide what may, or may not be considered a healthy condition of the organ. In most cases of fatty liver, the liver is increased in size, and of a softer consistence than it is in health. The secreting cells are found full of oil, and the specific gravity of the organ is considerably diminished. When handled it imparts an unc-

tuous sensation to the fingers. This disease is more common in females than in males, and in many cases it accompanies other diseases, as phthisis, pneumonia, and the continued and eruptive fevers. A condition of the liver known as *nutmeg* or *myristicated* liver, in which the organ, when cut into, presents the appearance of a nutmeg, is of no clinical importance. Fatty liver generally occurs in persons fond of the pleasures of the table, who indulge largely in eating and drinking, at the same time taking little or no exercise.

The treatment will consist in adopting measures to strengthen the system, and in cases of over-feeding to restrict the diet.

Waxy, or Lardaceous Liver.

This condition, which is not peculiar to the liver, but which may occur in other organs, has received various names, viz., *albumenoid, amyloid, waxy*, or *lardaceous* degeneration.

The deposit of a morbid material, about the nature of which opinions vary, is characteristic of this affection. By some it is considered to be analogous to starch, as it gives a blue colour with iodide of potash and sulphuric acid; by others it is supposed to be albumen more or less modified.

When the liver becomes affected it is greatly enlarged, but still preserves its shape. The organ is firm and resisting, the interior being dry and pale. The deposit is supposed by Frerichs

and Virchow to take place within the hepatic cells; by Budd, to be infiltrated exterior to the cells.

The disease occurs most frequently in young persons, especially in those who have a tendency to scrofula, or who have been attacked by syphilis. Males are more often affected than females.

During the course of the disease, general dropsy is not infrequent, often attended with uræmic symptoms.

The prognosis is unfavourable, as very little can be done by way of treatment. A combination of the iodide of potassium and the iodide of iron has been recommended by Frerichs. The diet should be nourishing, and the patient should be warmly clad. The dropsy, when present, must be treated on general principles.

Cancer of the Liver.

Like other parts of the body, the liver is liable to become the seat of cancer; in fact this organ ranks next to the uterus in its liability to this disease. The variety of cancer most frequently found, is the encaphaloid or medullary, and next in rotation, scirrhous and colloid. Cancer of the liver generally occurs as secondary to deposits in other parts. The growth of the disease is in most cases very rapid, and attended with considerable enlargement of the gland. To the usual cachectic condition of the patient are added pain in the

region of the liver of a shooting stabbing nature, enlargement of the organ, œdema of the lower extremities, and progressive emaciation and loss of weight.

The treatment is simply palliative.

Acute Atrophy of the Liver.

To a rapid and marked reduction in the size of the liver the names *acute* or *yellow atrophy of the liver*, *malignant* or *fatal jaundice* have been given.

The pathology of this disease is obscure. It is considered by Rokitansky to be due to an excessive secretion of bile which causes liquifaction of the tissue of the gland. By others, among whom may be mentioned Frerichs and Bright, it is believed to be due to inflammatory action.

Whatever may be the views entertained regarding the nature of this disease, it is a malady of great importance, and fortunately is of rare occurrence. The disease consists in the rapid and total destruction of the hepatic cells in every part of the gland. The cause of the disease is not very clear. Females—especially during pregnancy—suffer more frequently than males. Syphilis, and mental distress are among the causes. The symptoms are, at first simple derangement of the functions of digestion, followed by jaundice, intense pain in the head, active delirium, and convulsions. Gradually a condition of stupor succeeds, ending in fatal coma. The bowels are

confined, the urine contains bile and is sometimes albuminous.

Crystals of leucine and tyrocine are often also present in the urine.

The liver rapidly decreases in size, as discovered by palpation. The liver, which in health weighs between four and five pounds, may in this disease be reduced to a pound and a few ounces. The spleen, on the other hand is congested and enlarged. Petechiæ and ecchymoses, due to extravasation, are often present.

The duration of the disease, from the commencement to a fatal termination, is generally from one to four weeks. Most cases end fatally.

Treatment.—So little is known of the nature and cause of this disease, that not much can be said as to treatment. Drastic purgatives have been given, but with very limited success. When the vomiting is severe, measures to arrest it may be adopted; and symptoms as they arise must be treated as occasion requires.

Hydatid Tumours of the Liver.

The liver is the frequent seat of hydatid tumours. These tumours consist of a bladder contained in a sac to which it is non-adherent. The bladder contains a clear fluid in which float a number of round or ovoid cysts. An hydatid tumour may become so large as to push the diaphragm almost to the first rib. From some obscure cause or other these tumours may dry up, and the destruction of

the hydatids and echino-cocci takes place; sometimes they burst, discharging their contents either into the thorax or into the alimentary canal. As a rule, the prominent symptoms will depend upon the direction the tumour takes.

Several remedies have been suggested in order to destroy the hydatids, such for instance as the iodide of potash, common salt, calomel, &c. Should the tumour press outwardly, surgical interference may be necessary, the cyst being then opened and the contents evacuated.

Jaundice.

Jaundice or icterus is strictly not a disease *per se*, but consists in the collection of symptoms, resulting from the presence of bile in the blood, either from its not being secreted or from some impediment to its excretion and discharge, so that it enters again into the circulation. The signs which mark this condition are yellowness of the conjunctivæ and skin, high-coloured urine, due to the presence of the colouring matter of the bile in that fluid. The stools are white, like pipe-clay, and very fetid, due to putrefactive decomposition. The functions of digestion are more or less impaired, the patient complaining of depression of spirits and a feeling of general discomfort. In some cases, however, there is no complaint or uneasiness. In acute cases the colour of the skin is, as a rule, of a brighter yellow than in those of a chronic nature, when the coloration assumes an

olive or greenish yellow hue. The acute forms are generally attributable to catarrh of the mucous membrane of the gall ducts, which for a time obstructs the passage of the bile. The chief causes which give rise to jaundice are permanent stricture of the biliary ducts, or pressure exerted on them by malignant or non-malignant disease of the pyloric end of the stomach or of the pancreas. Chronic congestion or inflammation of the liver itself, or malignant disease of the organ may more or less give rise to this condition. Lastly there is the mechanical action of a gall-stone, which first formed in the gall bladder, may become arrested in its passage along the gall duct into the intestines. The constituents of a gall-stone are cholesterine, bile pigment, mucus, biliary matter, and calcareous salts. In the treatment of jaundice the cause must be looked for and removed. Gentle laxatives to relieve constipation will be required. The writer has found during his experience at a large dispensary, that the muriate of ammonia, combined with taraxacum, has a most beneficial effect in some forms of chronic jaundice, even after other remedies had failed. Blisters often do good when the inflammation of the liver has somewhat subsided. In those of a gouty diathesis, a few drops of colchicum wine, given with other medicines, will often assist in the success of the treatment. The diet should be simple and easily digestible, and during convalescence gentle exercise should be indulged in.

Inflammation of the Gall Bladder.

The gall bladder and its ducts may be attacked by inflammation, giving rise to symptoms of varying intensity. As has been pointed out just now, jaundice may occur due to the temporary occlusion of the duct, consequent on inflammation. If this condition continues for any length of time the gall bladder becomes distended with bile to an alarming extent. Ulceration may take place in the gall bladder, and its contents be emptied into the intestines. Cancer, usually a secondary deposit of that disease, may occur in this organ. The *ascaris lumbricoides* has been known to make its way into the gall duct and create an obstruction to the flow of the bile.

Gall-Stones.

Collections of cholesterine and inspissated bile may take place in the gall bladder. These collections, or "gall-stones" as they are called, may occur singly, but more frequently the gall bladder is found full of them, varying greatly in size. As many as two thousand have been counted after death. In their passage down the biliary duct into the intestine they give rise to important symptoms. Pain, which attends their passage, comes on suddenly without any obvious cause. It is of a most excruciating character, and is felt in the right hypochondrium. The paroxysm varies considerably as to its duration, often terminating suddenly and followed by comparative ease. After

a few days the gall-stone may be found in the evacuations. One attack may be followed by many more.

The treatment consists in the administration of opium to relieve the pain, but care should be taken not to give too much, as the sudden cessation of the pain permits the full action of the drug. As sedentary habits tend to their formation, a more active life should be enjoined.

DISEASES OF THE PANCREAS.

So little is known concerning the diseases to which the pancreas is liable, that a passing notice is all that is necessary. The gland may be the seat of acute or chronic inflammation and of cancer. Calculi may be formed in the pancreatic duct which may give rise to obstruction of the flow of the pancreatic secretion, or to dilatation of the duct. The diagnosis will depend upon the freedom of neighbouring organs from disease, and their attendant symptoms.

DISEASES OF THE SPLEEN.

Like other organs, the spleen may become the seat of acute and chronic inflammation. Structural lesions may also occur in the spleen. Chronic enlargement, readily detected by percussion and palpation, is seldom attended with pain. This enlargement may be associated with intermittent fever—ague cake—leucocythemia and cirrhosis The spleen has been removed by surgical operation, when the enlargement has been very great, but always with a fatal result.

DISEASES OF THE NERVOUS SYSTEM.

Inflammation of the Brain.

Inflammation occurring within the cavity of the head may attack the membranes—*meningitis*—or the substance of the brain—*cerebritis*. The inflammation may be either *acute* or *chronic*. For all practical purposes the distinction between meningitis and cerebritis is unneccessary, as the one seldom occurs without the other. The terms *encephalitis*, *phrenitis*, and *meningo-cerebritis* have also been applied to inflammation within the cranium.

But as the student may be required to show his ingenuity in diagnosis, the following table, taken from Aitken, may perhaps be of some assistance.

CEREBRAL DISEASE.	MENINGEAL DISEASE.
1. From the outset, or from a very early stage of development, there is loss of some one or more of the proper nervous functions, such as paralysis, anæsthesia, loss of memory.	1. It is not till some time after the detection of signs of disease, that diminution or loss of nervous function takes place.
2. Cerebral disease is not commonly attended with highly marked exaggeration of function, such as furious delirium, convulsions, intense hyperæsthesia, pain or tenderness.	2. The subsequent diminution or loss of nervous function which succeeds the prolonged existence of "head symptoms" is generally preceded, in cases of meningeal disease, by extremely severe excitement, or exaggeration of functions, such as pain tenderness, furious delirium or convulsions.

3. Little vascular excitement attends cerebral disease, nor is there frequently any highly marked general disturbance.

4. Paralysis and anæsthesia, losses of volition, ideation, perception, and the like, characterise cerebral disease.

3. In meningeal affections there is usually much local vascular excitement, with general disturbance.

4. Spasms, convulsions, pain, and delirium, are the general features of meningeal disease.

Acute inflammation attacking the membranes of the brain is attended with the same results as when it occurs in other serous membranes. There is more or less vascular redness due to engorgement of the vessels, and in most cases effusion of serum or deposit of lymph takes place. Apart from mechanical injury it is not always possible to assign the cause of this disease. It may occur during the course of any of the fevers, during an attack of gout or rheumatism, or it may be due to habits of intemperance, or to the suppression of the menses. Inflammatory affections of the brain are more common in early childhood than during any other period of life.

Fatal meningitis *very* frequently follows a chronic discharge from the ear. A distressing case occurred a few years ago in Edinburgh. The son of a medical man, a fourth years' student, was suddenly attacked by this disease. He attended a midwifery case the night before the pain in the head began. A discharge of pus from the ear on the second day gave a slight but temporary relief, and he died within a week. Pus was found on

the base of the brain, and the petrous portion of the temporal bone was diseased.

Symptoms.—Usually the earliest symptoms of inflammation of the brain and its membranes are severe pain in the head, followed by repeated rigors and vomiting, accompanied with more or less pyrexia. There is great intolerance of light. The head is hot, the face is flushed, and the carotids and temporal arteries pulsate strongly. The bowels are frequently obstinately confined. The pulse is quickened, strong and full. Delirium, more or less active, occurs in this stage, which, if the inflammatory action be not early arrested, passes on in a few hours, or at most three days, to the second stage. Niemeyer remarks that "fever of similar character and equal severity occurs in scarcely any other disease of the brain, and consequently is very important in the diagnosis of meningitis. If the frequency of the pulse disappear after the disease has lasted some time—if it fall from 120–140 beats per minute to 60–80 beats, while the other symptoms of fever and the functional disturbances of the brain increase—the evidence is still more in favour of meningitis." The following table will show the characteristic differences between gastric or hepatic vomiting and that due to cerebral disease.

Gastric or Hepatic Vomiting.	Cerebral Vomiting.
1. There is nausea, relieved, at all events tempor-	1. Nausea absent or very slight. Vomiting continues

arily; by the discharge of the contents of the stomach.	in spite of the stomach being empty. Any fluid or solid taken is immediately rejected.
2. The tongue is coated, the breath foul, the conjunctivæ yellowish, and the *headache secondary* in point of time.	2. The tongue clean, the breath pure, the conjunctivæ colourless or only injected, and the *headache primary*.
3. Vomit consists of undigested food, bile and offensive secretions; sometimes acid water, pus, or blood.	3. Vomit consists of unaltered food. Frothy mucus, never pus or blood, and sometimes only a trace of bile.
4. Griping pain in abdomen, diarrhœa, fetid eructations, and unhealthy watery stools.	4. Obstinate constipation, solid healthy stools, and no unpleasant eructations.
5. Loss of appetite.	5. Appetite present, no disinclination to take food.
6. Retching and increased salivation, abdominal tenderness, faintness and exhaustion.	6. The stomach is emptied almost without effort, no increase of the saliva, slight, if any, abdominal tenderness, no feeling of faintness after vomiting.

In the second stage, the pain in the head is somewhat diminished, and there is less sensitiveness to light and sound. The patient, in fact, is gradually getting comatose. The pulse becomes slow and irregular, and the respirations laboured. Convulsions may occur, sometimes just before the fatal termination.

When death occurs, the *post-mortem* appearances are, increased vascularity of the membranes, an effusion of serum, the presence of coagulated lymph, and in some cases pus. The brain tissue is often more or less softened, and infiltrated with pus.

Acute inflammation of the brain or its membranes when attended with active delirium must not be confounded with the delirium which occurs in the course of typhoid fever. The history of the case will help to form a correct diagnosis. The slow development of the fever, the presence of diarrhœa, tympanites, tenderness in the iliac regions, and continuance of the delirium without the supervention of coma, will mark the distinction between them.

Treatment.—The indications for treatment are :

(*a.*) To relieve the congestion of the brain, and arrest the inflammatory action.

(*b.*) To sustain the strength of the patient, and promote absorption of the effused fluid.

If the general condition of the patient does not contra-indicate it, local or general bleeding may be necessary. The hair should be shaved off, and ice in bladders applied to the head. Active purgation is in most cases called for. Perfect quietness must be enjoined, and everything that tends to increase the cerebral excitement must be avoided. The diet in the first stage should be bland and unstimulating. To remove the fluid, blisters to the back of the neck and the inunction of mercurial ointment on the scalp, together with the internal exhibition of the iodide of potash, are the measures to be adopted. A catheter should be passed at regular intervals into the bladder, if the patient be unable to pass his water. It should be remembered that as the application of

cold to the head has a most depressing effect, the case should therefore be most carefully watched.

Chronic Inflammation of the Brain

not due to tubercular deposit, may come on independently of a previous acute attack. The symptoms which sometimes accompany this disease are often not calculated to draw the attention to the brain, and not infrequently a case of chronic meningitis has been treated as a case of chronic gastritis. Pain in the head, together with much gastric irritation, are often prominent symptoms. Taken generally the symptoms are those of incipient insanity. There is more or less mental apathy, and a disinclination to exertion. The general health becomes impaired, and there may be partial paralysis of some parts of the body, and perhaps at the same time rigid contraction of the muscles in others. Delirium, or even fits of mania, may supervene, and the patient dies in an asylum during an attack of convulsions followed by coma. After death, if the brain be examined, the membranes may be found more or less thickened, and covered here and there by deposits of lymph. The structure of the brain is softened—*ramollissement*—and may be almost difluent, having the appearance of raspberries and cream. In some cases an abscess is formed, which may burst into one of the ventricles; in others there may be some hardening and induration of the brain sub-

stance. The treatment must be regulated by the condition of the patient, chiefly consisting in quietude of mind and body, and improving, if possible, the general health.

Tubercular Meningitis.

Tubercular meningitis is an inflammatory affection of the membranes of the brain, occurring most frequently in young scrofulous or strumous children, and accompanied with the deposit of miliary or yellow tubercle on or between the membranes. This disease was formerly described and known as acute hydrocephalus. The inflammatory action is in the majority of cases situated at the base of the brain, in this respect differing from the simple forms of meningitis. The morbid appearances are increased vascularity of the membranes and cerebral structure, together with an effusion of turbid fluid under the arachnoid and into the ventricles. Flattening of the convolutions will more or less depend on the quantity of the effused fluid. This disease is generally accompanied with the deposit of tubercle in other organs of the body.

The early symptoms of tubercular meningitis are those which mark a general impairment in the health of the individual. The appetite becomes capricious, the temper becomes irritable, there is a diminution in the weight of the body, and an anæmic condition of the surface of the

body. Sooner or later the head symptoms make their appearance: pain in the head, vomiting, increased sensibility to light and sound, and sudden and frequent flushing of the face, often the forerunner of convulsions. The bowels are confined and the tongue furred. The pain in the head may not be constant, but may occur at intervals, and is of a lancinating nature, giving rise in infants to a short, sudden, sharp cry, known as the *cephalic cry*. When the child is old enough to speak he often exclaims "Oh! my head," at the same time lifting his hands to his head. As the disease progresses, drowsiness sets in, the pulse becomes slow and irregular, and the respirations are performed with difficulty, and often attended with sighing. The child often grinds its teeth together in a most painful manner. Gradually the little patient becomes worse, and dies either in convulsions or comatose. In children tubercular meningitis must be discriminated from infantile fever. The diagnosis will be assisted by the absence, in infantile fever, of a morbid sensibility to light, and of the peculiar darting pain in the head, so frequent a symptom of meningitis. Squinting and rolling of the eyeballs in the last stage of the latter disease will help to distinguish the one from the other.

In the *adult*, during the course of phthisis, tubercular meningitis not infrequently supervenes. The head symptoms generally come on suddenly without any premonitory warning, the

first and prominent symptom being violent pain in the head. Amelioration of the chest disease for a time occurs in most cases. Vomiting, slight fever, and an irregular feeble pulse soon follow. In some cases, the early symptoms may be those of an apoplectic fit, followed by convulsions. The patient soon becomes worse, the mental dulness becomes greater, or there may be some amount of delirium. As the disease proceeds the sphincters relax, the stupour increases, and he dies in about a fortnight or less, death sometimes being preceded by a remission of the symptoms. The *post-mortem* reveals the presence of tuberculous deposits on the membranes at the base of the brain, varying in size from that of a millet seed to that of a pea. Sometimes there is a layer of yellowish opaque exudation, particularly in the neighbourhood of the optic chiasm and the fossa of Silvius. There is no symptom peculiar to basilar meningitis, and which will alone render its diagnosis certain.

The treatment in the case of the child will consist in the use of purgatives at the outset, followed by the administration of the iodide of potash at regular intervals. Ice should be applied to the head, and local bleeding by leeches may be had recourse to, if the symptoms demand their use. In the adult the treatment is more or less expectant; the patient generally dies either of the pulmonary affection, or is killed outright by the severity of the brain lesion.

Chronic Hydrocephalus

or dropsy of the brain, is sometimes congenital, and then is usually associated with some malformation of the brain. When not congenital the causes of the disease are obscure. Dr West is of opinion "that the disease is not a mere passive dropsy, nor simply a consequence of arrested cerebral development, but that it is the result of a slow kind of inflammation of the arachnoid, especially of that lining the ventricles, which may have existed during fœtal life, or may not have attacked the child until after its birth. I may further add that each year leads me to estimate more highly the share of inflammation of the lining of the ventricles in the production of chronic hydrocephalus."

Among the early symptoms of this disease may be noticed an impairment in the general health, and signs of mal-nutrition are also evident. The child may refuse food, or it may take it readily, but without appearing to be nourished by the amount consumed. The bowels are usually confined, and the evacuations are almost always of an unhealthy character. The head becomes *hot* and there is always more or less *tension* and *pulsation felt over the anterior fontanelle.* This condition of the fontanelle often attracts attention long before there is any notable increase in the child's head. Sooner or later the head begins to increase in size, and to assume the characteristic hydrocephalic appearance.

"Few objects,"—writes Dr West—"are more pitiable than a little child who is the subject of far advanced chronic hydrocephalus. While the skin hangs in wrinkles on its attenuated limbs, the enlarged head appears full, almost to bursting, owing to the stretching of the scalp; and the scanty growth of hair does not at all conceal the distended veins that run over its whole surface. The size of the skull, too, appears greater than it really is, since the face not only does not partake of the enlargement, but retains its infantile dimensions much longer than natural. The eyes are so displaced by the altered direction of the orbitar plates that the white sclerotica projects below the upper lid, and the iris is more than half hidden beneath the lower. Often, too, there is a considerable degree of convergent strabismus, or a constant rolling movement of the eyeball, which the child is unable to control; or the pupil is dilated, and quite insensible to light." Chronic hydrocephalus is in the majority of cases a fatal disease. If the child does not die of the disease itself, it is readily carried off by other ailments not usually fatal in themselves; the end in most cases being ushered in by convulsions or other indications of cerebral mischief.

Chronic hydrocephalus has been divided into two kinds:

(*a*) *External hydrocephalus*—

When the fluid collects in the sac of the arachnoid.

(*b*) *Internal hydrocephalus*—

When the fluid accumulates in the ventricles of the brain.

Treatment.—In most cases the treatment of this terrible disease is only palliative, attempts being made to "ease the stormy passage to the grave."

Professor Golis of Vienna, has recommended the inunction of the mild mercurial ointment to the scalp previously shaved of the hair. To prevent chills a flannel cap is ordered to be worn ; a ½ gr. of calomel is also directed to be given twice a day. Bandaging the head with strips of diachylon plaster has been used by Barnard, Trousseau and others ; and lastly tapping of the head in the line of the coronal suture, about an inch or an inch and a half from the anterior fontanelle has been practiced with variable success. Whichever plan be adopted to remove the fluid, it must be borne in mind that special care will be required to preserve the strength and improve the health of the little patient.

Apoplexy.

Apoplexy is a state of coma arising more or less suddenly, and dependent on different pathological conditions. Coma may be defined as a loss of consciousness from pressure on the brain.

Four varieties of apoplexy have been described:

(*a*) *Hæmorrhagic* or *sanguineous apoplexy:* This is caused by the extravasation of blood in the substance of the brain. The most usual seats of the extravasation, taken in the order of their occurrence, are the *corpus striatum*, and *optic thalamus;* then the *grey matter* of the *convolutions*, the *cerebellum* and *pons varolii.*

(*b*) *Serous apoplexy.*

This is due to the presence of serous effusion into the ventricles, or into the arachnoid cavity.

(*c*) *Congestive apoplexy.*

This is brought on by an over-loaded condition of the vessels of the brain.

Simple or *nervous apoplexy.*

Cases of simple or nervous apoplexy have been described by Abercrombie, Louis, Andral and others, where after death there was no appreciable pathological condition to account for the symptoms. These cases are probably due to uræmic poisoning. During infancy a form of apoplexy known as *meningeal* or *peripheral apoplexy* is not infrequent.

There are two predisposing causes to this disease:

1. *Excessive plethora.*

A tendency exists in some persons to accumulate blood rapidly, this tendency being often hereditary. Apoplexy is more common between fifty and sixty years of age, when the powers of nutrition are still good, but the power to resist the wear and tear of the system is diminished; it may also occur in women soon after the cessation of the menses. In most cases the countenance looks

turgid, and the eyeballs are prominent. The head is hot; the patient complains of drowsiness after meals and giddiness at any attempt at stooping.

2. *Disease of the arteries of the brain.*

The affection of the arteries most commonly found in persons about the middle of life, is, an atheromatous condition of the arteries, followed by a calcareous deposit in their coats. If this morbid action has once commenced, it continues to proceed through the rest of life, and hence it is, that many emaciated feeble old persons die of this disease. Often there is a gradual failure of the memory, particularly of the names of persons and things, due to mal-nutrition of the brain.

The exciting causes of apoplexy are over-exertion, fits of ungovernable passion, hot and ill-ventilated rooms and the indulgence in too hearty a meal.

An attack of apoplexy in most cases comes on suddenly, the patient falling, entirely bereft of consciousness, and in a comatose state. Sometimes, however, he may be first seized by some minor symptom such as giddiness, or a violent pain in the head, when after the lapse of a few hours, partial paralysis of one arm or one side of the face may supervene. Again, he may only complain of a feeling of intense drowsiness, and then, on being carried to bed, after an hour or two, he becomes completely comatose.

In the latter case if the patient is seen in the early stage whilst he is still able to recognise

those around him, and attempts to speak, he will be found in a fainting state, the surface cold and clammy, and his pulse quick and small from the fright and shock to the ganglionic system. When the state of coma is established, his pulse will become full, slow and labouring—fifty or less beats in a minute. The surface of the body now becomes preternaturally hot and bathed in perspiration; the breathing is stertorous, owing to the paralysis of the muscles which compose the soft palate; the countenance has a peculiar bloated appearance, and the lips are drawn in and forced out at each act of inspiration and expiration; the sphincter ani is frequently paralysed, allowing the escape of the contents of the lower bowel, whilst the urine is retained in the bladder; the extremities of one side are generally found more or less paralysed; the pupils of the eyes may be dilated or contracted, and incapable of receiving any impression from light or the finger placed before them. The state of coma may continue for some hours, and then the patient gradually recovers to find one or more of his limbs useless. On the other hand the patient may die outright in a few minutes, the mode of dying being by apnœa. Should, however, the state of coma continue for some days, he may die from exhaustion and apnœa combined.

The presence of a dark red clot in the ventricles of the brain, together with a red coloration of the surrounding tissues are the *post-mortem* appearances found, should death occur in three or

four days. Softening of the brain due to diseased state of the vessels, may be also present. Should the fatal termination be delayed a few weeks, the clot will have become paler, and may even have dwindled down to a mere band of straw-coloured fibrine.

Apoplexy must be distinguished from syncope, from hysterical coma, from alcoholic intoxication, and from the coma which sometimes follows epileptic fits.

Syncope is of brief duration, and is characterised by extreme pallor, coldness of the surface, sighing breathing, and great feebleness of the pulse.

The history of the case, and the presence of the smell of alcohol will help to form a correct diagnosis in most cases.

It must be borne in mind when paralysis occurs, the injury to the brain is on the opposite side to that of the paralysed limbs. The face is often an exception to this rule. Should recovery take place, there is generally some impairment of the functions of the mind left behind. Loss of speech, or *aphasia*, is not an infrequent sequel, and may depend on two things, defective memory of words (*amnesic aphasia*), or inability to perform the movements required for articulation (*ataxic aphasia*.) In the first case the power of writing is also lost, but this is not usually the case in the second.

The treatment will depend upon the nature of

the case and the condition of the patient when first seen. If active congestion be clearly made out, the prompt abstraction of blood is advisable. Should the stomach be over-loaded, as when apoplexy occurs after a meal, and vomiting be absent, an emetic to relieve the stomach may be given with caution, as the act of vomiting has a tendency to increase the congestion of the head. Purgatives in most cases are indicated, and those acting most expeditiously are to be preferred. Stimulating injections are also useful. The patient's head should be raised in bed on pillows, and ice applied to the vertex, whilst hot bottles or mustard plasters are kept to the feet and legs. The application of a large blister to the back of the neck often affords relief. The bladder must be examined from time to time, and the urine drawn off if necessary. Should the patient recover, the after treatment must be more or less prophylactic, and measures taken to ward off a future attack.

Sunstroke.

Insolation, coup de soleil, or *sunstroke* are terms applied to an affection of the nervous system due to exposure to intense heat, and the sun's rays. Some cases are marked by extreme exhaustion, the vital forces are prostrated, and the patient dies in a state of syncope. The effect on the nervous system is shown by the accom-

panying headache and vertigo, followed by loss of consciousness, stertorous breathing and convulsions. The symptoms sometimes betoken congestive aploplexy. The seizure in most cases is abrupt, the premonitory symptoms being slight or wanting. Dr Swift, in the N. Y. Journal of Medicine, gives the following account of the attack :—

"The patients are suddenly seized, whilst in the performance of their labours with pain in the head, and a sense of fulness and oppression in the epigastrium, occasionally nausea and vomiting, general feeling of weakness, especially of the lower extremities, vertigo, dimness of vision, and insensibility. Surrounding objects appear of uniform colour. In a great majority of cases, this was, so far as could be ascertained, blue or purple. In one instance everything appeared red ; in another green, and in another white." Sunstroke is more frequent in tropical than in temperate climates. Debility from disease is among the predisposing causes.

Paralysis does not accompany or follow an attack of sun-stroke. The pulse, frequent and full at the outset, becomes as a fatal termination draws near, frequent and feeble.

The treatment will depend upon the condition of the patient, if nervous exhaustion is a prominent symptom, perfect rest is absolutely necessary, and stimulants should be gradually and carefully administered. If the surface of the

body be hot, sponging with cold water will give great relief. The use of stimulating enemata has been strongly recommended by Assistant Surgeon Chapple, of the Royal Artillery.

All depressing measures— blood-letting, emetics and cathartics—should be avoided, unless the case present well-marked aploplectic symptoms.

Delirium Tremens.

Delirium tremens, *delirium è potu*, or *delirium ebriositatis* are the names applied to a disease induced by the abuse of spiritous liquors. After a period of continuous indulgence, the patient complains of great depression both of body and mind. His face is pale, and he suffers from a sensation of chilliness; he also dreads to be alone and is haunted by spectres. A state of active excitement now comes on, in which he gets no sleep, but talks continually in a timid half suspicious manner; expresses his belief that his friends are plotting against him, and is constantly anxious to get up and escape from murder, fire, and thieves, against whom he loudly vociferates. His skin is clammy, and his pulse weak and compressible, his muscles tremble, and even his tongue when put out trembles, or is instantly drawn into the mouth again. His conjunctivæ are red and suffused, his eyes restless, and he is constantly fidgeting with his hands and picking at the bed-clothes. His tongue is foul, and his stomach irritable.

The attack generally lasts about three or four days, then having worn itself out, ends in sleep, but sometimes the exhaustion proves fatal. An attack of delirium tremens may occur in habitual drunkards during the course of acute diseases—pneumonia, bronchitis, &c.—although alcohol had not been taken for some weeks previous.

The treatment consists in attempts to procure sleep. For this purpose opium has been used largely. Cold to the head, or the use of the cold shower-bath has often been attended with beneficial effects. Dr Jones, of Jersey, has recommended the administration of digitalis. He gives half an ounce of the tincture for a dose, to be followed in four hours by the same quantity, if necessary. The bromide of potash given in large doses is often followed by marked improvement in the condition of the patient.

The general treatment will consist in enforcing the most absolute quietude, and by allowing a light and nutritious diet.

Insanity.

To attempt to define insanity—even if it were possible—in so short a work as the present would be futile. I shall therefore adopt the following classification, which if it be not absolutely correct, has this one advantage—its simplicity.

(*a*) Idiocy, cretinism and imbecility.

(*b*) Dementia.

(*c*) Monomania.
(*d*) Melancholia.
(*e*) Acute mania.

Idiocy.—Idiocy is congenital, and was defined by Esquirol thus, "Idiocy is not a disease, but a condition in which the intellectual faculties are never manifested ; or have never been developed sufficiently to enable the idiot to acquire such an amount of knowledge as persons of his own age and placed in similar circumstances with himself are capable of receiving. Idiocy commences with life, or at an age which precedes the development of the intellectual and affective faculties, which are from the first, what they are doomed to be during the whole period of existence."

Cretinism, differs from idiocy in being endemic ; it is also more curable, or at least more susceptible of improvement than the latter. In the idiot the malady is congenital ; the cretin, on the other hand, may to all appearances for a time be free from disease. "Every cretin is an idiot, but every idiot is not a cretin ; idiocy is the more comprehensive term, cretinism is a special kind of it." The enlarged thyroid gland, high-arched palate, and brown or yellow colour of the skin is characteristic of the cretin. Local causes seem to be at work in the production of cretinism, but what the exact nature of these causes is, has not been definitely settled. It has been attributed to miasma, to over-crowding in low-lying, badly ventilated houses, and to ill-assorted marriages.

Smallness of the brain, premature ossification of the cranium, and want of symmetry in the brain, have also been mentioned among the causes of cretinism.

The idiot is usually cunning, mischievous, and dirty in his habits.

Imbecility, is a minor form of idiocy, and may or may not be congenital.

Dementia, consists in a failure of the mental powers coming on during life. The mind becomes weak and the ideas confused. "A man," says Esquirol, "in a state of dementia is deprived of advantages which he formerly enjoyed. He was a rich man, who has become poor. The idiot on the contrary has always been in a state of want and misery." In this state there is always more or less incoherence, and maniacal paroxysms are not infrequent. Among the causes of dementia may be mentioned fright, a previous attack of acute mania, or it may follow in the train of general paralysis.

Monomania, is a form of mental exaltation, characterised by the existence of one particular idea, which becomes the ruling passion of the individual. "The monomaniac lives *without* himself, and differs from others in the excess of his emotions. The physiognomy of the monomaniac is animated, changeful, pleasant: the eyes are lively and brilliant. The monomaniac is gay, petulant, rash and audacious." Beyond the one

(*a*) *A*
This is ca
the substa
of the ext
occurrence
mus; then
cerebellum
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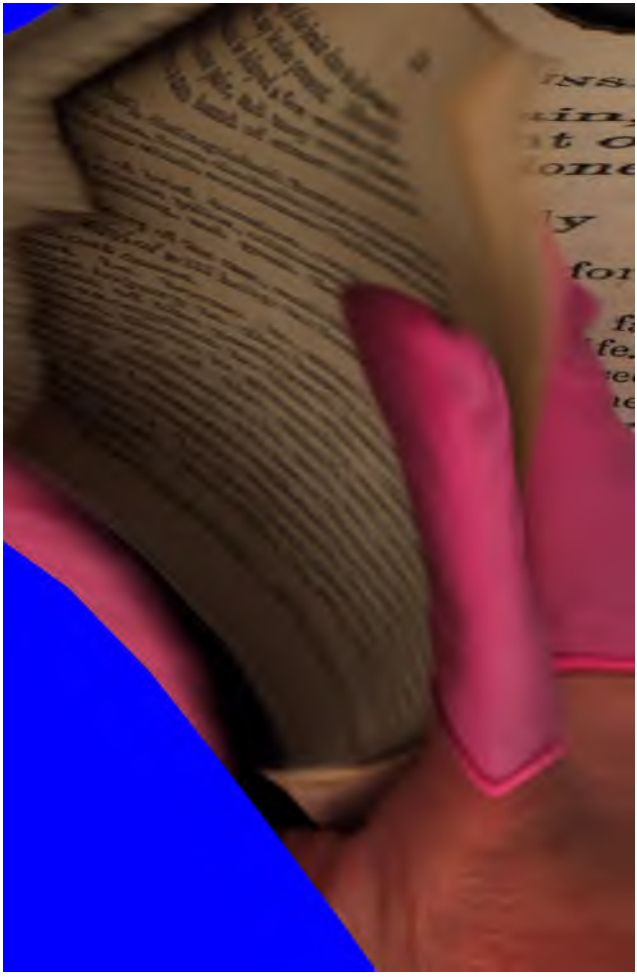

especially during the earlier stages, he may suffer from terrible delusions, from maniacal paroxysms or from epileptic fits, the latter possessing certain peculiarities. The tongue during the fit is seldom bitten, which is so commonly the case in epilepsy, and the convulsions are not so general, being limited more to one side than the other. It is also remarkable that each fit is in most cases followed by an increase in the mental derangement. The stupor which follows the epileptiform seizure of general paralysis is distinguished from that accompanying apoplexy by the absence of stertorous breathing and the puffing of the cheeks in the latter disease. The paralysed limbs are usually rigid, and not infrequently convulsed, which is not the case in sanguineous apoplexy. During the earlier stages of the disease both psychial and motory remissions may occur, and may last for several weeks.

Age, Cause and *Duration.*—The disease seldom occurs before twenty years of age, generally about forty, and rarely after sixty. The educated classes most frequently suffer. It is said to be caused by drinking, excessive venery or study, and the abuse of tobacco and opium. The duration of general paralysis may vary from six months to three years or more.

The *post-mortem* appearances of the brain show no one particular condition to which this disease may be attributed. M. Calmeil says that there is "some one modification of the brain

whose nature we have not yet learned to appreciate." Dr Buckmill believes "that General Paralysis is essentially *a disease of nutrition affecting the whole nervous system.*"

A TABLE SHOWING THE CAUSES OF INSANITY.

First—Physical Causes.

Intemperance.
Epilepsy.
Affections of the head and spine.
Uterine Disorders, viz. those of { Menstruation / Pregnancy. / Parturition. / Lactation.
Vice and immorality.
Fever and febrile diseases.

Secondly—As regards Moral Causes.

Domestic troubles and grief.
Religious anxiety and excitement.
Disappointed affections.
Fear and fright.
Intense study.
Political and other excitement.
Wounded feelings.

From Bucknill and Tuke.

Treatment.—The treatment of insanity will be *partly moral, partly hygienic,* and *partly medicinal.* In most cases firmness and strict adherence to truth are essential. The diet should be nourishing and properly cooked. Healthy exercise

and constant employment for the mind form a considerable item in the treatment of the insane. For the measures of treatment to be adopted in particular cases the student is referred to special works on the subject. A short residence in an asylum will enable him to learn more of these terrible affections than he may ever hope to obtain from the perusal of books on the subject.

Epilepsy.

Epilepsy is a paroxysmal affection attended with entire loss of consciousness, and convulsions. An epileptic fit sometimes comes on without warning, but in most cases there are premonitory symptoms which give notice of the attack. These may be either a sensation of tingling or coldness felt first in one extremity and gradually mounting towards the head, and known as the *aura epileptica;* or the patient may suffer from some delusion of the senses, which always precedes the attack. The epileptic seizure may be thus described: sometimes without any warning to the bystanders, the epileptic, suddenly, with a loud shriek falls, bereft of consciousness, but strongly convulsed. The eyes are generally wide open and the eyeballs turned up and rolling from side to side. The voluntary muscles are at first rigidly contracted, this condition lasting but a short time, and then followed by clonic convulsions, the muscles being contracted and relaxed in rapid succession. The tongue

may be protruded and in most cases is severely bitten. At first there is a white foam at the mouth tinged with blood. The inspirations are impeded and are accompanied by a hissing or sighing noise, due to the spasm affecting the muscles of the larynx. The action of the heart is tumultuous. After a period more or less prolonged, the patient gradually recovers consciousness, but with a more or less scared expression of the countenance. The writer has the notes of a case which occurred during his residence at the City of London Lunatic Asylum, of a young man the subject of epileptic fits. This poor fellow seldom fell down, but would have the fits standing. He usually put his hand behind his right ear and making a peculiar noise like the running down of a clock, continued standing till the fit had passed off when he would resume his employment. At first the fits occur at long intervals, weeks and even months may intervene, but as time goes on they occur more frequently and may become an almost daily occurrence. Epileptic fits are very common in confirmed lunatics.

The causes of this disease have been divided under two heads, *centric* and *excentric* or *centripetal;* the former, depending on some disease or irritation of the brain, the latter depending on some distant irritation, such as intestinal worms, or something having reference to the genital organs, masturbation &c., &c. At present we possess no pathological evidence as to the essential condition

in epilepsy. Induration from exudation in some cases, and softening from fatty degeneration in others, have been shown from the researches of Van der Kolk to exist in the medulla oblongata in some epileptics. Dr Todd considered that epilepsy is due to the collection of a *materies morbi* in the blood acting on the brain and giving rise to an explosion. Van der Kolk considers an exalted sensibility and excitability of the medulla oblongata, as essential to the development of the epileptic phenomena.

The treatment may be divided into two parts, during the fit and after the fit. During the fit, care must be taken that the patient does himself no hurt. The clothes about the neck must be loosened, and in women it is as well to remove the stays. A piece of cork or other soft substance should be placed between the teeth so as to guard against any injury to the tongue. Cold may be applied to the head and hands and the patient placed in a cool well-ventilated room. As soon as he recovers from the fit the exciting cause must be sought and removed. In young men who indulge in masturbation, kind treatment, combined with moral persuasion will be necessary. In girls irregularities in the catamenia must be corrected. Epilepsy is often shammed; an examination of the eyes, which in true epilepsy are generally open and incapable of receiving impressions, are in spurious epilepsy closed, and the pupils dilate when a bright light

is thrown upon them. The suggestion of the application of the actual cautery or red hot poker will soon cause a return to consciousness, in cases where the disease is imitated. Of late years the use of the bromide of potash has been suggested in the treatment of epilepsy, with the marked effect of reducing the frequency of the attacks. It may be given in drachm doses three times a day in severe cases.

Chorea

or *St. Vitus' dance* is a disease occurring most frequently in children. It is characterised by irregular contractions of the voluntary muscles, giving rise to movements which are only partially, if at all, under the direction of the will. These contractions become worse if the patient perceives that he is noticed. The general health is more or less impaired, the bowels are confined, and the appetite is capricious or entirely lost. Inorganic anæmic endocardial murmurs are not infrequent during the course of chorea. There are no pathalogical lesions peculiar to this disease. By M. Sée and others it is considered to have some connection with rheumatism. Worms, fright, and an anæmic condition have all been considered as causes of chorea. Children, especially girls, between ten and fifteen years of age, are the usual subjects of this disease, but it has been known to occur as late in life as eighty-four. The usual

duration of the disease is from one to three months, but it may last as many years.

The treatment will consist in the administration of appropriate medicines to remove the anæmic state of the blood, if such a condition be present. Constipation, when present, calls for remedial treatment. If the child is able to stand the shock, cold shower baths may be tried. Iron, zinc, arsenic, and strychnia have all been tried with varying success. Anti-spasmodic remedies have also been given, among which valerian, canabis indica, and camphor may be mentioned. Hygienic measures must not be forgotten. In the children's hospital in Paris great attention is paid to gymnastic exercises in the treatment of St Vitus' dance.

Locomotor Ataxy.

Locomotor ataxy is a peculiar form of paralysis, in which the power of regulating muscular movements is lost. The disease begins insidiously, and its progress is very gradual. The patient first complains of pains in the limbs, which he considers due to rheumatism or neuralgia, and for which he may be treated. He may suffer from headache and slight dimness of sight, or he may see things double. He feels creeping gradually over him a sense of muscular weakness; a difficulty is also experienced in retaining the contents of the bladder. The desire for sexual intercourse is at first increased, but is gradually lost. Formication may now be

felt in different parts of the body, and he complains of a sensation of "pins and needles" in his arms and feet. These symptoms may continue for some time—three or four years—but still there is no marked symptoms of paralysis. The pains increase in the limbs, and when he stands he can no longer detect any resistance to his foot. If he attempts to walk with his eyes closed he immediately begins to totter and roll about in a half-drunken manner. Without looking, he is unaware of the position of his legs. The gait is peculiar, the lower limbs are thrown about in a most irregular way, and he appears to have no power to control their movements. Yet with all this, he can resist any effort made to flex or extend his limbs against his will. Well marked pauses or remissions in the symptoms often occur, but recovery never takes place. The disease in most cases occurs between the ages of thirty and fifty, and is more frequent in men than in women. A diseased condition of the posterior columns of the spinal cord, the posterior roots of the spinal nerves and of the cranial nerves are found after death. The membranes of the cord are more or less thickened and opaque. "The degeneration consists of an atrophy, with disintegration of the nerve fibres, with proliferation of the connective tissue, giving to the columns a greyish red transparent aspect." The intellect is not impaired. The prognosis is unfavourable; death may occur from intercranial mischief or from inflammatory affections, &c.

Causes.—Exposure to damp, anxiety, mental exhaustion, venereal excesses, &c.

Treatment.—Tonics, counter-irritation to the spine, Faradization, &c.

Hysteria.

Hysteria, with few exceptions, is a disease peculiar to females, especially about the age of puberty. The forms under which this disease makes its appearance are legion. As it occurs in young women, a hysterical fit comes on with immoderate bursts of sobbing or laughter; or they may alternate, the change from one to the other being abrupt. A choking sensation, as if due to the presence of a foreign body is felt in the throat, and is known as the *globus hystericus*, being most probably due to the spasm of the muscles of the pharynx, or, as some think, produced by the collection of flatus arising from the stomach through the œsophagus. During the fit, the woman does not entirely lose consciousness, and may all the time be aware of what is going on around her, though she have not the power to speak. The tongue is not bitten, nor does she otherwise injure herself. As soon as the convulsions cease the consciousness returns. An abundant discharge of pale-coloured urine of low specific gravity generally follows the fit. So much for a hysterical fit. The disease, in by far the greater majority of cases, has certain affections

with which it is invariably associated; among these may be mentioned, spurious disease of the hip, neuralgia, functional affections of the heart, hyperæsthesia of various parts of the body, hysterical coma, &c., &c.

The treatment during the fit will consist in sprinkling the face with cold water, and in the administration of some one or other of the anti-spasmodics, the chief of which are valerian and assafœtida, together with camphor water. Tonics, change of air, and sea-bathing will assist in averting the tendency to future attacks. The state of the uterine functions must be enquired into, and any derangement corrected.

Catalepsy

is doubtless but one of the forms under which hysteria presents itself to our notice. It may be best considered as hysterical coma, to which are superadded a peculiar rigidity of the voluntary muscles, the limbs remaining fixed in the position in which they may be placed by another. It is a paroxysmal affection, well-marked cases being extremely rare. The treatment will depend upon the nature of the affections with which it may be allied.

Paralysis.

Taken in the ordinary acceptation, the term paralysis is used to imply a loss of power in the voluntary muscles. This term is, however, also

applied to denote a diminution or loss of general or special sensibility. When both motion and sensibility are lost, *perfect paralysis* is said to exist; when only one, *imperfect paralysis*. *Acinesia* is paralysis of motion; *anæsthesia* paralysis of sensibility. Paralysis has also been divided into general and partial; in the first place, when the whole body is paralysed, in the second, only a part. Partial paralysis, affecting one side is known as *hemiplegia;* when it affects the lower part of the body and extremities, *paraplegia*. Local paralysis is a more limited form, an example of which may be seen is ptosis, or dropping of the upper eyelid, due to paralysis of the levator palpebræ superioris muscle.

The following causes give rise to paralysis.

(*a*) Disease of a nerve centre, brain, or spinal cord.

(*b*) Disease of a nerve in any part of its course.

In most cases paralysis of one side of the body —*hemiplegia*—is to be traced to disease of one hemisphere of the brain, generally to that opposite the affected side, and paralysis of the lower portion of the body and extremities—*paraplegia* —to disease or injury of the spinal cord.

Paraplegia

or paralysis of the lower extremities, is the result of disease or injury to the lower portion of the spinal cord. Very often the paralysis extends to

the rectum and bladder. The power of motion may alone be lost, but not infrequently loss of sensation is also present. In some cases sensibility is morbidly increased; this condition is known as *hyperæsthesia*. Paraplegia, as a rule, comes on gradually. It may be remarked that though voluntary motion be entirely lost, involuntary contractions of the muscles are by no means rare. These contractions may be frequently induced by irritating the soles of the feet, or tickling the inguinal region of the abdomen. Cramps frequently occur, generally at night, much to the distress of the patient. If the bladder be paralysed, the urine may be detained and becomes strongly ammoniacal, or it may constantly dribble away from the patient. Another unfortunate and depressing complication is a tendency to bed-sores on the nates, due to the constant pressure of the part by long confinement in the recumbent posture.

Paraplegia has been divided into two kinds :—

1. REFLEX PARAPLEGIA.

2. PARAPLEGIA DUE TO DISEASE OF THE SPINAL CORD.

1. *Reflex paraplegia* may be due to—

(*a*) Intestinal worms.

(*b*) Disease of the bladder and kidneys.

(*c*) Pregnancy.

(*d*) Teething.

(*e*) Any irritation applied to the periphery of a nerve, or to any point in its course.

Proofs in favour of the theory of reflex paralysis.

1. The cause being sought and removed, a cure is in *most* cases effected.

2. The improvement in the condition of the paralysed part, due to a like improvement or modification in the external source of irritation.

PARAPLEGIA DUE TO DISEASE OF SPINAL CORD.

(*a*) *Transverse section* of the *posterior columns* of the *cord* produces—

1. Loss of power below the section of controling muscular movements.

(*b*) *Imperfect transverse section* produces—

1. Incomplete power of controlling muscular movements below the section.

Hyperæsthesia common to both cases.

(*c*) *Transverse section* of the right *antero-lateral column* causes paralysis.

1. On same side and *vice versa.*

(*d*) *Complete transverse section* of *central grey matter* is followed by—

1. Loss of sensation in all parts below the section.

(*e*) *Transverse* section of the *left half* of the *grey matter* is followed by—

1. Loss of sensation in the right limb.

2. Hyperæsthesia of left limb, and *vice versa.*

From the above it follows that if one entire half of the cord be divided by a transverse section, there will result paralysis of motion, and hy-

peræsthesia on the same side as that divided, and loss of sensation only on the opposite side.

The muscles are rigidly contracted when inflammatory action is present at the seat of disease, but they are flaccid when inflammation is absent, or has subsided.

In reflex paraplegia there is seldom an extension of the paraplegia upward, whereas in that due to disease of the cord a progressive increase is not infrequent.

In the treatment of reflex paraplegia, the probable cause must be sought and removed; in the other form of paralysis, counter-irritation to the spine, and the free administration of tonic medicines will be required.

Hemiplegia

denotes paralysis of one side of the body, that is the upper and lower extremity of one side. The muscles of the face may or may not be affected. The paralysis may be either perfect or imperfect, that is, both motion and sensibility may be lost, or only one.

This affection is generally the result of some lesion of the brain, and may occur with or without apoplectic symptoms. The patient suddenly falls, loss of consciousness sometimes existing for a few minutes, but is soon recovered from. This forms the well-known "paralytic shock," or "stroke of palsy." The muscles of the paralysed limbs often become permanently contracted, or

gradually waste away. The tongue is drawn towards the paralysed side.

The causes of hemiplegia are—

(*a*) The formation of a clot within the cranium.

(*b*) The presence of an abscess in the structure of the brain.

(*c*) The growth of tumours, which may be bony, and by exerting pressure on the substance of the brain thus give rise to paralysis.

Rigidity of the muscles betokens the continuance of irritative action within the cranium.

Disease of the right side of the brain gives rise to paralysis of the left side. The face is sometimes an exception to this rule.

Disease of right *corpus striatum*, loss of motion on the left side.

Disease of *right optic thalamus*, loss of sensation on left side.

Disease of *right crus cerebri*, or *right half of the pons varolii*, loss of motion and sensation on left side.

A clot pressing upon the *medulla* gives rise to derangement in the functions of respiration and deglutition.

Treatment.—Cathartics, dry cupping, unstimulating nourishment, the internal administration of the iodide of potash, cod liver oil, &c. When the rigidity of the muscles has subsided, but the paralysis still continues, galvanism may be tried.

DISEASES OF THE SPINAL CORD.

Acute Spinal Meningitis.

The membranes of the cord may become the seat of acute inflammation. The symptoms which mark the presence of the disease, are pain of a burning character felt down the spinal column, and darting into the extremities. The slightest movement of the body increases the pain, and also pressure along the vertebral column. Opisthotonos, due to the powerful contraction of the muscles of the back, may also occur. Paralysis, caused by pressure on the cord from the effusion of fluid under the membranes, is not infrequent. The disease in most cases ends fatally.

The treatment will consist in the adoption of the general measures recommended when speaking of acute cerebral meningitis. When the disease becomes chronic, the application of the actual cautery may be of use.

Myelitis

or inflammation of the structure of the spinal cord, has no well marked symptoms which may be considered characteristic. A certain amount of paralysis always accompanies the disease. The part of the body paralysed will depend upon the portion of the cord in which the inflammatory process exists. The cord may become softened,

and suppuration, the result of the inflammation, ensue.

Hæmorrhage between the membranes of the cord, giving rise to what is called *spinal apoplexy*, is very rare. When it does however occur, it constitutes one of the morbid conditions which enter into the causation of paraplegia and general paralysis.

Cerebro-Spinal Meningitis.

Inflammation of the membranes of the brain and spinal column sometimes appears as an epidemic. The name "Spotted Fever" has also been proposed for this affection. In most cases the patient is suddenly attacked by headache, nausea, vomiting, and pain down the spine. Chills sometimes occur, as also vertigo and diarrhœa. The slightest noise, or movement of the body, greatly increases the pain. All the symptoms which mark the presence of inflammation of the membranes of the brain, and of the spinal cord, are present. The exact pathological nature of this disease has not been clearly made out, and opinions vary greatly as to its causation and character. It appears to prevail most frequently among soldiers, attacking all ages indiscriminately. Cerebro-spinal meningitis is generally fatal, the average number of deaths being about sixty per cent.

So uncertain in their curative effects are the various methods of treatment that have been sug-

gested for cerebro-spinal meningitis, that the practitioner will find it better to rely on general principles, and adopt those measures which the case appears to demand.

DISEASES AFFECTING THE URINARY ORGANS.

Nephrytis.

Nephritis is an acute inflammation of the substance or parenchyma of the kidney, rarely met with.

Pyelitis, inflammation of the mucous membrane of the pelvis of the kidney, though also a rare disease, is more frequently met with than nephritis, to which it generally gives rise by an extension of the inflammatory action. Irritation due to the presence of a stone in the pelvis of the kidney, or the impaction of a calculus in the ureter, giving rise to distension of the pelvis and calices of the kidney, are the usual cause of both these diseases, apart from external violence, the effect of sudden chills, and poor living.

The inflammation may end in resolution, or it may go on to suppuration and abscess. Even under the most favourable circumstances the kidney is generally left enlarged, and more or less indurated.

The symptoms of acute nephritis are pain felt over the region of the kidney, tenderness on pressure; the urine is scanty or suppressed if both kidneys are affected. When pyelitis is also present the urine contains muco-pus in more or

less abundance. There is always some general disturbance of the system accompanying these diseases.

The prognosis will depend upon the severity of the inflammatory process, and the nature of the probable cause. Uræmia, should it occur, will greatly add to the danger, and lessen the chance of recovery.

Treatment.—Local depletion, if necessary. Dry cupping has in some cases afforded relief. Hot fomentations and poultices should be applied over the loins. Purgatives and diaphoretics are indicated in order to relieve the kidneys as much as possible of their work. Rest in bed and perfect quiet will make up the necessary treatment.

Albumenuria.

Under this head are included certain acute and chronic diseases of the kidney, marked by the constant appearance of albumen in the urine, by more or less dropsy, and frequently ending in uræmic poisoning. Albumen may be present in the urine during the course of certain fevers and other acute diseases, but then its presence is only transitory, and is not due to any permanent structural derangements of the kidney.

We shall treat first of acute Bright's disease, and then of the chronic form.

Acute Bright's Disease.

Acute Inflammatory Dropsy, Croupous Nephritis, Acute Desquamative Nephritis.

As a sequel to scarlet fever acute desquamative nephritis is not infrequent. It then generally follows mild attacks of that disease, due to the exposure of the patient to cold during the stage of desquamation, or what is more probable, from the poison not having been exhausted by the fever and eruption. The burden of the removal of the poison is therefore thrown on the kidneys, which are unable to bear the strain. It has been frequently remarked that during an epidemic of scarlatina there is a strong tendency for simple diseases—catarrh, simple sore throat, &c.—to assume a diphtheritic or croupous type. It is not improbable, therefore, that the kidneys become more or less affected, and that when to this condition the poison of scarlatina is added, the result is the disease in question.

When acute desquamative nephritis does not follow an attack of scarlet fever, it may arise from other causes, as exposure to cold, intemperance, and as a sequel to diphtheria and cholera, especially during the typhoid stage of the latter.

Post-mortem appearances. — The appearance which the kidney presents is that of hyperæmia and incipient exudation. The kidney is enlarged, soft, easily torn, and of a more or less dark brown colour. On section, numerous ecchymoses are seen scattered about the surface, which is more or less covered by an adhesive fluid, the result of the inflammatory process. The uriniferous tubules are found full of epithelium, and the Malpighian capsules engorged with blood. The accumulation

of epithelial cells may give a whitish or mottled appearance to the organ.

Symptoms.—Perhaps suddenly during the latter stages of the desquamative process in scarlet fever, that is, between the seventeenth and twenty-third day after the subsidence of the eruption, a rigor, followed by vomiting, may mark the accession of the renal complication. The presence of vomiting is an important *diagnostic* symptom. Fever and pain felt in the loins then follow. The patient makes frequent attempts to pass water.

The quantity secreted is small, of high specific gravity, albuminous, of a smoky or of a dirty brownish colour, this latter condition being also characteristic of acute Bright's disease.

If the sediment be examined under the microscope it is found to be composed of casts from the minute urinary tubes—*epithelial casts*—and of other casts probably of coagulated fibrin—*hyaline* or *waxy casts*—generally having a granular appearance, from the presence of a multitude o epithelial cells.

Œdema, diagnostic of renal disease, appears first in the face, especially about the eyelids, in the morning, the ankles and scrotum becoming swollen towards evening. The face is puffy and assumes a pasty look. Anasarca of the hands and legs next occurs. The skin is dry and hot, and the patient complains of considerable thirst. The pulse is quickened. The dropsical effusion has a marked tendency to shift from one part of the

body to another. Other complications may arise; pneumonia, pleurisy, or pericarditis are not infrequent, to one of which the patient usually succumbs. In some cases uræmic poisoning occurs, attend with convulsions, and followed by coma and death. The exact nature of the morbific material has not been clearly made out. By some it is considered to be due to the carbonate of ammonia, the result of the decomposition of the urea, and not simply to the urea unchanged.

A return to the normal amount of urine marks the improvement in the condition of the patient.

Indications for treatment.

1. *To arrest the inflammatory action.*
2. *To give rest to the kidney.*
3. *To remove the dropsy.*

1. In robust and plethoric individuals, local bleeding by cupping or leeching over the region of the kidneys may be employed. Hot poultices applied across the loins are also found useful.

2. Diaphoretics and hydragogue purgatives, to produce a free action of the skin and bowels, and thus relieve the kidneys of a portion of their work, will be necessary. The hot air bath will be found a most valuable adjunct to other means adopted. General bleeding and the use of calomel are contra-indicated. Patients suffering from acute Bright's disease show a marked susceptibility to the action of mercury, profuse ptyalism not infrequently following the administration of even small doses of the drug.

3. To remove the dropsy, the compound jalap or the compound scammony powder will be the best for the purpose; in severe cases elaterium must be used. The tincture of steel given during this stage is often attended with marked improvement in the condition of the patient. Sir Robert Christison recommends the use of digitalis in combination with the acid tartrate of potash. Dr Roberts suggests the free use of the citrate of potash and broom tops, in any stage of the disease, to reduce the dropsy.

During convalescence the patient should be warmly clad, and exposure to cold scrupulously avoided. Flannel should be worn next the skin.

Chronic Bright's Disease.

Chronic diffuse nephritis — Parenchymatous nephritis.

Chronic Bright's disease of the kidney is now considered to depend upon a primary morbid condition of the blood. "May it not be possible that by some failure in preparation, either by the stomach or liver, albumen enters the blood on the right side of the heart in a still crude state, and in a condition similar to that in which it would have been had it been introduced through the jugular vein? and thus, being unassimilatable, is it not excreted, as in Bernard's experiment, by that ready outlet, the kidney? In support of such a supposition, we have the facts, that many cases of kidney disease seem to be most probably of

blood origin, and that among the common antecedents of Bright's disease are circumstances of diet or mode of living which would be likely to impair the processes which should go on in the stomach or liver."—*See* Parkes on the Urine. There is little uniformity in the morbid appearances of the kidney in Bright's disease. By some the several lesions about to be described as affecting the kidney are considered to represent different stages of the same disease. There are others, however, who entertain contrary opinions. The following is a summary of the various views expressed on this subject: "An engorgement of the renal blood-vessels, an effusion of inflammatory products, a more or less complete and general metamorphosis of these products into fat, and finally, atrophy and wasting of the kidneys. The small contracted kidneys have once been fatty; the large, pale kidneys are in constant progression towards atrophy and contraction."

These lesions are as follows:—

1. *Large, white kidney.*
2. *Hard, contracted kidney.*
3. *Fatty kidney.*
4. *Lardaceous, amyloid,* or *waxy kidney.*

1. *Large, white kidney.*—In this case the kidneys become considerably enlarged, with increase of weight. The appearance of the gland is white or whitish yellow and anæmic, due to the obliteration of the vessels.

Total disorganisation of the kidney sooner or

later takes place. It may become the seat of fatty or amyloid degeneration. In most cases the large white kidney follows an attack of acute Bright's disease. The average age of patients suffering from this disease was, in 106 cases collected by Dickenson, 28·2 years. Dropsy is almost constantly present, and a marked tendency to secondary inflammations has been noticed. Uræmia is also not infrequent. The urine is scanty, the specific gravity at one time normal, at another time slightly raised. The colour may be pale and cloudy, or smoky, and deposits tube casts, epithelial cells, &c., &c. The disease in most cases runs a rapid course, death taking place in about six months, but the fatal issue may, however, be deferred for years.

2. *Hard contracted kidney.*—The kidneys in this case are greatly reduced in size, and may each only weigh an ounce and a half. The cortical portion which in the last case is so greatly increased, in this is notably diminished, the medullary cones extending almost to the surface. The structure of the organs becomes dense and hard, and the capsule adherent, and exhibits rounded elevations varying in size from that of a pin's head to that of a pea. Dr Grainger Stewart considers that the diseased process commences in the intertubular matrix, and that it consists in an hypertrophy of the fibrous stroma of the organ, which destroying the uriniferous tubes and malpighian bodies, causes a contraction and reduc-

tion in the size of the organ. Cysts are not infrequently developed in this condition of the kidney, supposed by some to be formed by the dilatation of epithelial cells; by others they are considered to be dilations of the uriniferous tubes which have become plugged at intervals. The enclosed spaces then become dilated.

The contracted kidney is generally chronic from the beginning. Dropsy is absent, in from a quarter to half the number of cases. Slight œdema of the ankles and legs, with some small amount of puffiness of the eyelids. The urine is plentiful, three or four pints a day being not infrequently passed; the specific gravity is low, with but a small amount of albumen. Hypertrophy of the left ventricle of the heart frequently occurs during the course of the disease, which may be protracted for years. The average age of patients who suffer from this disease is greater than in the large white kidney. The urine deposits granular and hyaline casts, epithelium, but seldom fatty particles.

3. *Fatty kidney.*—In this form of the disease the renal structure becomes soft, yielding, and of a fawn colour. The kidneys are also more or less enlarged. When cut into they present a fatty appearance and give a greasy, unctuous sensation to the finger.

4. *Lardaceous, amyloid* or *waxy kidney.*—This condition is rare. The organs may or may not be increased in size. They are found dense and

firm, and present a waxy appearance. The renal structure gives one the idea of its having been soaked in balsam. Lardaceous or waxy kidney is generally accompanied by a like condition of the liver and spleen. The natural structure of the gland is almost entirely lost; it is hard, not easily torn, and the capsule can generally be removed with ease. Disease appears first to originate in the arteries and malpighian bodies. A watery solution of iodine gives a dark mahogany brown colour with that portion of the kidney diseased, the healthy portion only giving a yellowish tinge. The lardaceous material is not of the nature of starch or cellulose, but more probably fibrine more or less modified. In the earlier stages the urine is generally abundant. Dropsy most frequently occurs, but uræmic poisoning is of rare occurrence. The albumen gradually increases as the disease proceeds; the urine becoming scanty, pale in colour, and the specific gravity high. The patients look pale, sallow, and cachectic.

These several affections cause—

1. *Interference with the secretory functions of the kidneys.*

(*a*) By plugging the convoluted tubes with disintegrated epithelium.

(*b*) Destruction of the secreting structure.

2. *Interference with the circulation in the kidneys.*

(*a*) Congestion takes place.

3. *Poisonous effects due to—*

(*a*) Uræmia, attributable to the non-elimination of urea.

(*b*). Albumenuria—To be attributed to interference with the circulation through the kidney.

Symptoms.—In many cases the first symptom that attracts the attention of the patient to his kidneys is the frequent desire to make water, especially *at night*. In other cases, however, the appearance of dropsy is the first indication of renal mischief. This tendency to frequent micturition *during the night* in incipient Bright's disease is important, especially if the patient be young, and there be no suspicion of prostatic disease. Frequent micturition, due to the presence of calculus, more often occurs *during the day*, caused by the irritating effect of the movement of the stone in the bladder. Premonitory to the above, however, he may for some time previous have complained of general and increasing debility, accompanied with marked pallor of the face. The dropsy usually makes its appearance first as an œdematous swelling round the eyelids, most marked in the morning when the patient rises from his bed. This condition may also occur simultaneously with anasarca of the lower extremities, scrotum, and penis. If the urine be now examined it will be found of low specific gravity, pale in colour, and containing albumen in considerable quantity. The quantity passed varies with the condition of the kidney. In the contracted form of the disease, its

quantity may not be very materially diminished, and the amount of albumen not large, sometimes disappearing for a time. On the other hand, the urine passed when the disease takes the form of the white kidney is scanty, full of albumen, and of low specific gravity, a great diminution in the amount of the solids having taken place. The urea can be detected in the blood. Sometimes in the early stage, when the acute disorder is passing off, the urine assumes a dark smoky hue, due to the presence of blood changed in colour by the action of the acid urine. A more hopeful prognosis may be given when the urine is in this condition than when it assumes a pale straw colour. If some of the urine be placed in a test tube and heat be applied, the albumen will be precipitated. A few drops of nitric acid should be added. This precaution is rendered necessary by the fact that in weakly persons heat alone may produce a white deposit of the phosphates, not unlike the albuminous deposit, but which on the addition of a few drops of nitric acid is dissolved. Sometimes also, if the urine be alkaline, heat alone will not cause a coagulation of the albumen. Nitric acid added to fresh urine may precipitate the uric acid, giving a cloudy appearance. Both heat and nitric acid should therefore be used to save the possibility of error. Examined by the microscope, the urine may be found to contain, *granular casts*, *fatty casts* *hyaline* or *waxy casts*, and renal epithelium cells, oil drops and granular matter. The early symp-

toms now become more marked. The continued paleness of the face points to an anæmic condition of the system. The digestive organs show more prominent symptoms of general disorder, and there may be present frequent attacks of sudden vomiting. The respiration and the circulation become more or less impeded from dropsical effusion in the pleura, pulmonary œdema, and œdema of the glottis, together with hydro-pericardium, &c., &c.

The small contracted kidney is not infrequently associated with a gouty diathesis. Hypertrophy of the left ventricle without valvular disease may occur during the course of Bright's disease.

The amount of albumen passed in twenty-four hours may vary from forty to five-hundred grains. The urine is usually pale in colour, cloudy, and may contain blood in varying proportions, the quantity, however, being in most cases very small. The urea together with the other solid constituents of the urine are all diminished. The blood becomes more watery, the red corpuscles less in number, and the quantity of albumen is below the normal standard. Urea and uric acid are found in the blood, together with other extractive matters. The skin is generally dry.

Blindness, or rather a dimness of vision is not infrequent in the course of chronic Bright's disease, due sometimes to rupture of the retinal vessels, or to paralysis of some of the papillæ of the retina.

Causation.—The causes which give rise to

chronic Bright's disease are obscure. It may follow the acute affection. Gouty or strumous persons are often the subjects of this disease, as are also those who have suffered from syphilis.

Diagnosis.—The presence of dropsy, together with the concurrent appearance of albumen and tube casts in the urine will in most cases assist in pointing out the nature of the disease from which the patient suffers.

The prognosis is always unfavourable.

Treatment.—The treatment will consist in supporting the strength of the patient, and in treating the complications as they arise. The patient should be warmly clad, flannel being worn next the skin. An easily digested and nourishing diet will be required. The preparations of iron are indicated, especially when there is a marked anæmic condition of the blood. The dropsy is best treated by purgatives, the most useful being the compound jalap powder, combined with the bi-tartrate of potash. In severe cases elaterium may be given, together with diuretics, their effects being carefully watched. Uræmic symptoms, when they occur, will require the use of active purgatives, the hot air bath, and diuretics to remove the morbid materials from the blood.

DIFFERENTIATION BETWEEN THE "LARGE WHITE CONTRACTED KIDNEY," AND THE "LARDACEOUS, OR WAXY KIDNEY."

CONTRACTED KIDNEY.	LARDACEOUS, OR WAXY KIDNEY.
1. Chronic from the beginning.	1. Generally comes on insidiously in cachectic persons suffering from debility.
2. Dropsy in the majority of cases is absent, or limited to slight œdema of the eyelids.	2. Dropsy in the majority of cases is present.
3. Strong tendency to hypertrophy of the left ventricle, [illegible] of the arteries of the [illegible] and apoplexy.	3. Uræmia seldom occurs. Generally complicated with *phthisis*, *syphilis*, and *waxy* degeneration of *liver* and *spleen*.
[illegible] urine is plentiful, and [illegible] specific gravity. To[illegible] the latter stages the urine [illegible] become scanty.	4. The urine is abundant in quantity, pale in colour, and albuminous.
The deposit, slight in quan[illegible]ity, is composed of granular and hyaline casts, some epithelium, seldom fat or blood.	5. The deposit, is scanty, consisting in atrophied renal cells.
6. The quantity of albumen is small, and may disappear for a time from the urine.	6. Albumen is always present.

[illegible] tendency to secondary [illegible] pneumonia.

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Uræmia.

Uræmia, or uræmic poisoning, are the terms employed to denote a certain condition of the nervous system characterised by epileptiform convulsions, ending in most cases in coma. These nervous phenomena not infrequently occur during the course of both the acute and chronic form of Bright's disease of the kidneys, or when from any other cause the action of the kidneys is impeded or arrested. The most prominent symptoms are headache, and vomiting, perhaps suddenly ceasing, to give place to a feeling of heaviness and a desire to sleep. This state may pass off, or be followed by epileptiform convulsions, coma sooner or later supervening, and terminating in death. Consciousness in rare cases is not entirely lost.

In all cases which admit of a doubt, the urine should be carefully examined, some being withdrawn, if necessary, by means of a catheter, for that purpose. Immediately preceding an uræmic attack, the urine in most cases becomes diminished in quantity, together with a like diminution in the amount of urea. But it must be borne in mind that total suppression of urine may occur, and may continue for some days, without the supervention of uræmia. Diarrhœa and vomiting are symptoms of disease, though not of poisoning.

causation, in the

absence of any anatomical lesion in the brain to explain the peculiar phenomena noticed in uræmia. Richardson and Hammond consider that urea is the active agent. Frerichs believes that the urea is harmless, and that it is its conversion into carbonate of ammonia in the blood which induces the nervous symptoms. Treitz maintains that this conversion of urea into ammonia is not carried on in the blood-vessels, but that it is first excreted into the alimentary canal, where it is converted into the carbonate of ammonia by the gastro-intestinal mucus.

Uræmic diarrhœa and vomiting may be thus explained. As far as the above attempted explanations go, it may be stated that Hammond and Richardson have proved that ammonia exists in the blood in healthy animals. Let us try something else. Oppler, Schottin, and Perls, state—and they believe themselves warranted in doing so, from the nature of their experiments—that these uræmic nervous phenomena are due to the accumulation in the blood of the primary products of tissue metamorphosis, which are on their way to be transformed by the kidneys into urea and uric acid.

The proof of this, they assert, is to be found in the fact that urea accumulates more abundantly in the blood of animals in whom they had tied the ureters, than in those from whom they had removed the kidneys. They also found that the blood contained the same amount of urea as in

health in animals who had lost their kidneys, but that this substance became increased when the ureters were tied.

That an increase of ammonia in the blood did not follow the presence of large quantities of urea. And that *creatine* was always found increased in the muscles of the animals.

Uræmic convulsions do not, as a rule, follow simple obstructive suppression of the urine.

Treatment.—This will consist in the administration of purgatives, diaphoretics and diuretics.

THE FOLLOWING TABLE WILL ASSIST THE STUDENT IN FORMING A DIAGNOSIS.

URÆMIC COMA.	APOPLEXY.	OPIUM POISONING.	EPILEPSY.
Absence of paralysis. Return of consciousness during the convulsive attacks, if any are present. The pupils are dilated, or semi-dilated, and there are remissions in the insensibility. Face pale and breathing easy.	Paralysis. Age of the patient, and previous history will assist in forming a diagnosis.	Pupils contracted. No remissions in the insensibility.	Diagnosis difficult. History of the case will help, and also an examination of the urine. Face flushed and purplish.

A Table Showing the Condition of the Urine in Certain Diseases.

Ague.—During the hot and cold stage, the water of the urine is increased in quantity, but during the sweating stage, the amount is diminished. During the fit the urea is increased; this is also the case with the uric acid. The chloride of sodium is greatly augmented in quantity during the cold and hot stages.

Anæmia.—The urine is pale, there being a marked deficiency in the amout of pigment.

Chlorosis.—It is nearly neutral in reaction, and of low specific gravity.

Chorea.—The specific gravity varies from 1019 to 1035. Lithate of ammonia and oxalate of lime are frequently present. The urea is also in excess. The density to a great extent depends upon the excessive movements of the muscles in patients suffering from chorea.

Diabetes.—The odour is sweetish or like hay. The colour is a pale straw colour. The specific gravity varies from 1030 to 1074. If allowed to stand for any time it ferments.

Dyspepsia.—The urine sometimes contains free acid. Cardialgia, nausea, and frontal headache are frequently associated with an acid condition of the urine soon after food has been taken. A diminution of the chloride of sodium is most marked when digestion has been imperfect.

Crystals of oxalate of lime are common in this disease.

Jaundice.—The urine is of a saffron, dark olive green, or nearly bark colour. Bile pigment, leucine and tyrosine are present.

Pneumonia.—During the first stages the watery portion is lessened. The urea is increased in quantity. Specific gravity 1025 to 1035. Uric acid and the colouring matter are also greater than in health. The chloride of sodium is diminished. The sulphuric acid is increased to about one-third the nominal amount, and albumen may or may not be present.

Typhoid Fever.—Water diminished in quantity.
Specific gravity is high.
The urea and uric acid are increased.
Chloride of sodium less than normal.
Sulphuric and phosphoric acids, normal.
The colouring matter is sometimes increased.
Albumen and tube casts, may be sometimes present.

Diabetes Insipidus.

Chronic diuresis, or polyuria, are terms applied to an affection characterised by an increased secretion of urine of low specific gravity, and accompanied with intense thirst. The disease occurs more frequently among men than among women. It has been attributed to cerebral disease, blows on the head, intemperance, exposure to cold, cer-

tain inflammatory diseases, and to hereditary predisposition.

The invasion of the disease is frequently sudden, no premonitory symptoms preceding the attack. The skin is usually dry and harsh. The thirst is intense. The general health of the sufferer is in many cases not much impaired.

Diabetes insipidus must not be confounded with diabetes mellitus, in which latter disease, besides the great increase in the quantity of the urine, there is the well-marked presence of sugar.

The exact nature and pathology of this disease has not yet been clearly defined. The primary cause, it would appear, must be looked for in other parts than the kidneys. Bernard found that by irritating the floor of the fourth ventricle of the brain he could produce an increased flow of urine containing neither albumen nor sugar. The sympathetic nervous system is probably more or less implicated in the production of this disease. There is no condition of the kidney peculiar to this disease.

Diabetes Mellitus.

Diabetes mellitus, or saccharine diabetes, is a cachectic disease characterised by a profuse flow of pale straw-coloured urine loaded with sugar.

The specific gravity of the urine is high, being about 1040, or more. The quantity secreted in twenty-four hours has been as much as thirty pints.

Besides the above-mentioned abnormal flow of

urine, the patient gradually emaciates and becomes extremely debilitated. The skin is dry and rough, and the tongue is also dry, red, and fissured. The thirst is intense and the appetite voracious. Digestion is more or less impaired, and pain and flatulence are complained of after meals. Constipation is the rule, sugar being also present in the fæces. The breath has a sweetish odour, not unlike new mown hay; the urine also partakes of the same smell. The gait is unsteady, the patient walking with an uncertain step. The gums are softened, at times reddened, at others pale, and have a great tendency to bleed on the slightest pressure. The pulse is seldom affected; if at all, it is oftener retarded than quickened.

Diabetics often suffer from ekzema and other diseases of the skin, and not infrequently from boils and carbuncles.

Impaired vision, due in some cases to amaurosis, in others to the presence of cataract, is also not an uncommon complication of diabetes.

The course of the disease is not generally very rapid.

The causes and pathology of this disease are obscure. By some it is considered to be brought about by impairment in the digestive organs, by others to be due to hyper-secretion of sugar by the liver, dependent on morbid excitation of the nervous system. Age seems somewhat to influence the occurrence of this disease; it is rare in

infancy, youth, and advanced life, generally occurring in those between thirty and fifty years of age.

In forming a diagnosis it must be borne in mind that sugar may appear in the urine in the course of many diseases. It is the persistent occurrence of this substance in abnormal quantities which marks diabetes or glucosuria.

The following are the tests employed for the detection of sugar in the urine :—

1. *Trommer's test.*—To the suspected urine in a test tube, a small quantity of solution of sulphate of copper is added, enough to make it slightly blue, and then an excess of liquor potassæ, enough to re-dissolve the precipitate that is at first thrown down. If the liquid be now heated to boiling point, and sugar be present, a reddish brown precipitate of sub-oxide of copper will appear, owing to the carbonaceous nature of the sugar depriving the copper of a portion of the oxygen.

2. *Moore's test.*—The urine is mixed with half its bulk of liquor potassæ in a test tube, and boiled for four or five minutes; if sugar be present, the whole of the liquid will become of a dark brown colour, from the sugar becoming *glucic acid*, which combines with the potash.

3. *Fermentation test.*—A bit of dried German yeast is fixed within the mouth of a test tube, which is then filled with urine, warmed to 70° F.

and inserted in a vessel containing a small portion of the urine. Fermentation soon takes place, bubbles of carbonic acid gas rapidly rise and collect in the upper part of the tube. Each cubic inch of gas corresponds to a grain of sugar decomposed.

Treatment.—The treatment for the most part consists in a very regulated diet. All starchy or saccharine articles of food must be avoided, so that no vegetables are admissible except cabbage and other like greens. Almond cake and bran bread are to be taken instead of bread. Milk, eggs, and animal food form the usual diet of the sufferer from diabetes. To relieve the thirst, French wines may be allowed, and water acidulated with phosphoric acid.

If there be much noctural restlessness, opium may be given to procure sleep.

Alkalies sometimes afford relief, but as a rule, the treatment of this disease is more dietetic than medicinal.

Cancer of the Kidney.

The kidney, though rarely, may become the seat of cancer, in which case it is usually the encephaloid variety.

Movable Kidney.

Due to some obscure cause, one of the kidneys —in most cases the right—may become loosened,

and so form a movable tumour distinctly felt through the abdominal walls. This anomalous condition of the kidney gives rise to dull aching pain in the lumbar region, increased by pressure or muscular exertion.

It is well to remember this fact when about to determine the nature of any obscure abdominal tumour.

The use of an abdominal belt will in a measure obviate any inconvenience that may attend this condition of the kidney.

Hydronephrosis.

Hydronephrosis is a term applied to a condition of the kidney attended with more or less complete destruction of the gland, by the accumulation of fluid in it. The collection of fluid may depend upon congenital malformation of the kidney, or it may be due to some obstruction, by which the secreted urine is prevented from passing off through its natural channel. One or both kidneys may become affected. The term "dropsy of the kidney" has been given to this condition, but it is by no means a good one. The fluid is in most cases, urine more or less modified.

It is important in the examination of the abdomen, with regard to doubtful tumours, to bear in mind the possibility of this state of the kidney. The enlarged kidney has been tapped

under the impression that it was a case of ovarian dropsy. When not due to congenital malformation, the obstruction in the ureter may become removed, and a sudden flow of urine mark the patency of the duct.

The following TABLE *may assist in forming a diagnosis, which at the best of times is not easy.*

OVARIAN DROPSY.	HYDRONEPHROSIS.	ASCITES.	HYDATID CYSTS.
Abdomen more enlarged on one side than on the other. Dulness due to the cellular condition of ovary, and its presence *before* the intestines.	A tympanitic sound heard in front, due to the presence of the colon in front of the tumour, dulness in the lumbar region. Dulness is fixed in whatever position the patient may be placed.	Dulness on percussion will depend upon the position of the patient. If lying on the back, dulness at back, and *vice versa*.	Escape of hydatid cysts with urine, or presence of hydatid fremitus. Hydatid cysts of the kidney are seldom found on both sides.

N.B.—In all doubtful tumours in the abdomen, pass a catheter; you will thus get rid of one source of error, *distended bladder*.

TABLE *showing the several forms of gravel, the symptoms which accompany their formation and presence in the urine; their treatment, and the tests by which they may be distinguished.*

	LITHATES.	PHOSPHATES.	OXALATES.
CAUSE.	Peculiar condition of the system. Errors in diet, sedentary habits. Dyspepsia, gout and rheumatism, and hereditary predisposition.	Exposure to cold, injury to spinal cord. Catarrh of the bladder, any irritation of the bladder. Peculiar condition of system.	Constitutional predisposition; use of certain vegetables—carrots, turnips, &c.; impediment in the respiratory functions; during convalescence from severe diseases.
SYMPTOMS.	Irritation felt in the urethra when passing water. Pain felt shooting down from kidney into the groin or bladder. The pain intermits. Nausea and vomiting are not infrequent. The pulse is not increased in rapidity, and the temperature of the surface of the body is normal. The urine deposits a pink, yellow, or red sand.	Pain felt in the back and loins. Digestion imperfect. Bladder irritable. Urine contains mucus, and may contain, when passed, a white milky deposit. Marked tendency to crystallise round any nucleus, hardened mucus, &c.	No well marked symptoms. Patient's attention first attracted by pain on passage of calculus from kidney.

TABLE—*(continued)*.

	LITHATES.	PHOSPHATES.	OXALATES.
DIAGNOSIS.	The red deposit, when abundant, may be confounded with blood. Absence of mucus. The urine is acid, and does not become alkaline or decomposed on standing. The lithates when precipitated are dissolved by heat, the phosphates are not.	The urine, at first acid, becomes alkaline and putrescent on standing. Ammonia throws down a white cloud of phosphate of lime, and ammonio-magnesian phosphate. The addition of phosphoric acid re-dissolves the precipitate.	Presence of a sediment which is not soluble in acetic acid; soluble in hydrochloric acid, and is then precipitated by ammonia.
PROGNOSIS.	Favourable if the deposit is slight. Danger will be increased if a calculus is formed.	Danger will depend on concurrent vesical disease, and the formation of a calculus.	Formation of calculus of the mulberry variety.
TREATMENT. MEDICINAL.	Administration of the alkalies, especially the bi-carbonate of potash. The salts of lithia, colchicum wine and turpentine are sometimes of use.	Tinctures of bark and iron, and the mineral acids, especially the nitro-hydrochloric, are the medicines generally used.	The administration of the nitro-hydrochloric acid is often of use.

TABLE—*(continued)*.

	LITHATES.	PHOSPHATES.	OXALATES.
DIETETIC.	A vegetable diet; less animal food. Avoidance of alcohol. Barley water, &c., &c.	Generous diet, including meat and small quantities of wine.	Avoidance of all vegetables which contain oxalic acid—rhubarb, carrots, sorrel, &c.,—and sparkling wine or beer.
TESTS	Urate of ammonia insoluble in cold, but soluble in hot urine. The urine heated and filtered will deposit urate of ammonia on cooling. The urine is acid. Uric acid is insoluble in cold or hot urine, in acetic or hydrochloric acids.	Earthy phosphates are dissolved by heat and acetic acid, and are precipitated from clear filtered solution on the addition of ammonia. The urine acid at first becomes alkaline, and putrifies on standing.	Oxalate of lime is insoluble in acetic acid, but soluble in hydrochloric acid, from which it is precipitated by ammonia. Insoluble in phosphoric acid.

DISEASE OF THE SUPRA-RENAL CAPSULES.

Disease of the supra-renal capsules appears to be sometimes attended with a peculiar form of anæmia in which a discoloration of the skin forms a prominent feature.

This disease is generally known as *Addison's*, or the *bronzed-skin disease*. The pathology of this condition has still to be studied before any decided opinion can be given as to the mutual relationship between the peculiar colour of the skin and the disease of the capsules. Most cases end fatally.

The treatment will be chiefly directed to relieve the anæmic state of the patient.

DISEASES OF THE SKIN.

The diseases now to be briefly considered affect the cutaneous surface of the body. They require for their cure both local and constitutional treatment. In many cases they have a tendency to become chronic, and are then very troublesome to cure. The constitutional treatment will consist for the most part in allowing a nourishing diet, and in the administration of the preparation of iron, arsenic, mercury, iodine, &c. The local treatment will require the application of simple lotions to allay the intolerable itching which so often attends the course of these affections, or the use of ointments which contain certain active ingredients, and which, as in the case of the order Parasitici, destroys the insect or growth which is the cause of the disease.

For the sake of convenience, these diseases will be considered in the following order :—

(*a*) PAPULÆ.

Examples—Lichen ; prurigo.

General characters.—Simple elevations of the cuticle, sometimes inflamed.

Lichen.—This disease is characterised by the presence of inflamed elevations of the cuticle, accompanied with intense itching, and sometimes occurring on the back of the hands, at other times

scattered over the shoulders and other parts of the body.

Lichen strophulus, or Red Gum, the earliest eruption of infants. Lichen sometimes occurs on the hands of grocers, bakers, and washerwomen. Grocers' itch is *Lichen agrius*.

The treatment will consist in the use of mild laxatives, restricted diet, and warm baths. The irritation may be allayed by the use of the common lead lotion, to which a few drops of hydrocyanic acid have been added.

Prurigo.—The aged are very frequently troubled with this affection, and as it is attended with intense itching the annoyance is very great. The nates and the outside of the thighs are the parts usually affected in old people. Care must be taken not to confound this disease with those of a parasitic origin. It is often most intractable, no method of treatment seeming to have much power over it. The application of dilute acetic acid, or the use of the lotion recommended in the last case, will often relieve the intense itching. The diet must be unstimulating. Sponging the parts affected with apple vinegar, allowing it to dry, and then smearing them with citrine ointment has been recommended by Dr Bowling, of Kentucky. Laxatives, the internal use of liquor potassæ, arsenic, &c., are the means generally employed.

(*b*) VESICULÆ.

Examples.—Herpes ; sudamina ; eczema.

General characters.—Small elevations of the cuticle, containing serum on an inflamed base.

Herpes.—Clusters of vesicles on a common base, but the clusters are frequently separated by healthy skin. After a time the vesicles dry up and form scabs. There are several varieties.

Herpes Labialis. — Appearing on the lips and nostrils, due to catarrh and indigestion, and sometimes occurring in the course of ephemeral fever.

Herpes preputialis occurring on the glans penis, has been treated for syphilis.

Herpes circinatus may occur on the scalp, and be treated for ring-worm.

Herpes Zoster, or the shingles, is usually confined to one side of the body, generally the right. It is accompanied by a deep-seated internal pain in the course of one of the intercostal nerves. The pain, probably due to some nervous irritation, is sometimes present for a day or two before the appearance of the eruption.

Mild purgation and regulation of the diet is all that will be required by way of treatment.

Sudamina.—Minute vesicles occurring during the course of some acute diseases which are attended with profuse sweating. The eruption is identical with that appearing in the disease described by some writers as *Miliaria*, and considered by them as a special fever.

Ekzema.—The vesicles in ekzema are very minute and very numerous, crowded together in broad irregular patches, attended with much tingling, heat, and itching, and a copious discharge. Desquamation then takes place, the scabs coming off in thin flaky crusts. Ekzema is most frequently seen on the backs of the hands, the skin over the shin, the nape of the neck, and at the back of the ear. It may, however, extend over the whole body, with a strong tendency to become chronic. It is often constitutional, and is sometimes hereditary.

The local treatment will consist in the use of soothing applications, among which may be mentioned cod liver oil.

If the disease has not become chronic, besides the local treatment, saline aperients will be required. Should the disease, however, assume a chronic form, it will be necessary to try the effects of arsenic. Strict attention must also be paid to the regulation of the diet. Professor Bennet recommends the application of weak alkaline lotions, constantly applied.

(*c*) PARASITICI.

Examples 1.—*Tinea tonsurans, T. favosa, T. decalvens, T. sycosis, Plica Polonica* and *Chloasma.*

2.—*Scabies.*—

General characters.—They are all contagious. Those placed under the first section are due to

the presence of vegetable growths; that under the second, to an insect.

Tinea tonsurans.—The parasite in this case is the *Tricophyton tonsurans*. The disease has received several names—*porrigo scutulata, herpes tonsurans, herpes circinatus, trichosis furfuracea,* and lastly, *ring-worm.*

Circular red patches, with numerous minute pustules, crowded at the circumference of the patch, characterise the disease.

Ring-worm may occur on other parts of the body, besides the scalp.

Tinea favosa.—*Porrigo favosa, favus, tinea lupinosa*—characterised by the presence of bright yellow umbilicated scabs, resembling a honeycomb. The parasite is the *Achorion Schönleinii.* It most frequently attacks the scalp.

Tinea Decalvens.—The presence of bald patches on the scalp, more or less circular, due to the destruction of the hair by a parasitic fungus, the *Microsporon Audouini.* This affection is also known by the following synonyms—*porrigo decalvens,* or *alopecia circumscripta.*

Tinea Sycosis.—This occurs on the chin of men, and is connected with a vegetable parasite, the *Microsporon mentagrophytes,* in the hair follicles of the beard.

The treatment to be adopted is the same. Perfect cleanliness, removal of the hairs by epilation

or shaving will be required. The scabs must be removed by the application of soft poultices; sulphurous acid or ointments containing substances to destroy the vegetable growths must be applied for this purpose the ammonia chloride of mercury or the ointment of creasote will be found useful.

Plica Polonica is a disease not unlike ringworm, seldom seen in England, but common enough in Poland.

Chloasma.—Pityriasis versicolor, or liver spot. It generally occurs on the chest or shoulders, in patches varying in size, and of a bright liver, or reddish brown colour. It is said to be due to a parasitic fungus, the *microsporon furfur*. The application of the sulphurous acid lotion will in most cases effect a cure.

Scabies. — Scabies, Psora, or the itch, depends on the irritation of an animalcule, or kind of mite, the *Acarus scabiei*, which burrows in the cuticle. It gives rise to the presence of vesicles which appear most frequently on the hands, especially between the fingers. The vesicles are surrounded by a rosy-coloured base. The itching is intense, warmth in bed generally increasing it.

The treatment will consist in the inunction of the common sulphur ointment. This is best done before a fire.

(*d*) BULLÆ.

Examples.—Pemphigus, pompholyx.

General characters.—Vesicles of large size.

Pemphigus is attended with more or less fever, and by the presence of bullæ, or blebs, on the surface of the body. When the vesicles burst they are succeeded by thin brownish-coloured crusts. It may last from one to four weeks, or even longer.

Pompholyx, in which the vesicles are as large as nuts or small walnuts, and unattended with inflammatory symptoms.

The treatment of the above will consist in the use of alterative medicines, and the allowance of a nutritious diet.

(*e*) PUSTULÆ.

Examples.—Ecthyma; impetigo; acne; rupea.

General Characters.—Inflamed elevations of the cuticle containing pus, followed by scabbing, and leaving cicatrices.

Ecthyma usually occurs in syphilitic and cachectic subjects. The pustules are large and distinct, situate on inflamed and hard bases. After a time they burst, and are succeeded by thick dark crusts or scabs.

Impetigo is a non-contagious pustular eruption occurring on different parts of the body. The pustules are generally in clusters, and form thick prominent rough crusts. The disease has been

divided into two varieties—*impetigo figurata* and *impetigo sparsa.*

In the treatment of the above, mild saline laxatives will be necessary, together with the application of the oxide of zinc ointment to the pustules after the removal of the scabs by means of a poultice. Tonics may sometimes be required in the latter stages of the affection.

Acne.—Acne occurs in most cases on the shoulders, or on the face of young persons about the age of puberty, and consists in inflammation, and suppuration of the sebaceous follicles. This condition is probably due to some morbid state of the secretions induced by errors in diet, and a want of attention to the regular action of the bowels. Three varieties of this disease have been described by Willan—*acne indurata, a. rosacea,* and *a. simplex.*

Aperients, tonics, fresh air, and cleanliness will meet the requirements of the case.

Rupia.—Rupia, sometimes classed with the bullæ, is in most cases an evidence of a syphilitic or cachectic taint. It is remarkable as regards the formation of the scabs, which are conical and have been compared to limpet shells. A deep ulcer is most frequently found under each crust.

The treatment of rupia will in part be directed to the removal, if possible, of the cachectic condition of the patient and in part to the healing of

the subsequent ulceration after the fall of the scab. Tonics, the iodide of potash, or iodide of iron may be used, together with careful attention to hygienic rules, and the allowance of a nutritious diet. A little zinc ointment to the ulceration will be all that is required by way of local treatment.

(*f*) SQUAMÆ.

Examples.—Lepra; psoriasis; pityriasis; icthyosis.

General Characters.—The formation of scales of morbid cuticle generally in patches, of a whitish colour, and covering dry red surfaces.

Lepra.—This disease, which is non-contagious, usually occurs on the limbs at the bend of the joints in annular patches spreading at their circumferences and healing towards the centre. It often has a syphilitic origin.

The treatment will demand the use of alkalies, arsenic, and in the syphilitic variety, known by its copper coloured appearance, mercury will most probably be necessary to effect its removal.

Psoriasis is more diffused than lepra, and is chiefly found on the palms of the hands and soles of the feet. It is also frequently of syphilitic origin. Psoriasis is also known as "dry tetter," in contra-distinction to herpes, or "wet tetter." It is non-contagious, and requires the

same sort of treatment as lepra, with which it is frequently confounded.

Pityriasis, in which the scales are very small. It chiefly occurs on the scalp in the form of dandriff or scurf. The best treatment for this is the use of the mild citrine ointment, made up with a little pleasant pomade. The author learnt this treatment from a hairdresser who had made quite a name for curing scurf.

Icthyosis, or fish skin, is a disease marked by the presence of fish-like scales. It is congenital and incurable. There is not infrequently some deposit of pigment under the cuticle.

(*g*) EXANTHEMATA.

Examples.—Erythema; roseola; urticaria.

General Characters.—Irregular superficial red patches, disappearing on pressure and terminating in desquamation.

Erythema.—The most curious kind is that known as *erythema nodosum*, appearing as oval red swellings along the shins and ulnæ of girls and young women, continuing about a fortnight, and then going off leaving the appearance of a bruise.

The use of iron and bark will be required in the treatment of the above.

Roseola.—Roseola æstiva occurring in chil-

dren during the summer time with slight febricula. It is non-contagious. The patches are larger than those of measles but smaller than those of scarlet fever, for which diseases it may be frequently mistaken. Mild laxatives will be all that is necessary.

Urticaria, or nettle-rash, is a non-contagious eruption of the skin, characterised by the presence of prominent patches, or wheals. It usually arises from irritation of the stomach and bowels from shell-fish, or some other indigestible food. Nettle-rash may be accompanied with vomiting and purging. The itching, which more or less attends this disease, is sometimes almost unbearable. The duration of urticaria is short.

Warm baths and simple saline medicines are alone required. If the cause be due to stomach derangement, an emetic or purgative may be necessary.

TUBERCULÆ.

Examples.—Elephantiasis ; molluscum ; lupus ; frambœsia ; keloid.

General Characters.—Hard indolent elevations of the skin, sometimes ulcerating at their summits, sometimes suppurating partially.

Elephantiasis.—Divided into *elephantiasis græcorum* and *e. arabicum.* The former, or true leprosy, is a non-contagious, hereditary, and fatal disease, consisting in tubercular purplish

coloured patches, which tend to ulcerate. The latter, elephantiasis arabicum, or Barbadoes leg, is characterised by swelling and induration of the skin and sub-cutaneous areolar tissue. The lower extremities are the parts most frequently attacked. Both these diseases are peculiar to hot countries.

Molluscum contagiosum.—This disease is fortunately very rare, and must not be confounded with molluscum fibrosum. M. contagiosum is characterised by the presence of rounded elevations on the skin, varying in size from that of a mustard seed to that of a walnut or even larger. The elevations consist of little cysts filled with a hard or soft sebaceous matter. The disease is unattended by constitutional disturbance.

The treatment will consist in squeezing out the contents of the cysts, and then applying a point of nitrate of silver. The administration of tonics will also be necessary.

Lupus, frequently occurring on the face, especially the nose, and ulcerating deeply, as well as superficially destroying the skin and cartilages. It may be confounded with cancer and syphilis. Lupus not infrequently occurs in young scrofulous persons.

Treatment.—Tonics, cod liver oil, and the application of caustics externally. The best caustic for this purpose is chloride of zinc.

Framboesia, or yaws, is a tubercular disease common in Africa, the West Indies, and America. It may attack any part of the body, and is most difficult to remove.

Keloid—*chelonia, cheloidea,* or *cancroide*—is a disease of a fibrous nature, in which the skin acquires the appearance of the shell of the tortoise.

THE END.

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